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COMPANY PROFILE

AUTOMATIC DATA PROCESSING
405 Route 3
Clifton, New Jersey 07015

Telephone: (201) 365-7300

President: Josh Weston

Status: Public Company, NYSE

Year Founded: 1949

Fiscal Year End: June 30

PERFORMANCE

	1978	1979	1980	1981	1982	1983
Revenue ($ millions)	$ 296	$ 369	$ 455	$ 558	$ 669	$ 753
Percent growth	23%	25%	23%	23%	19.8%	12.5%
Net Income ($ millions)	$27.5	$33.2	$39.6	$49.3	$57.8	$64.5
Percent growth	18%	21%	19%	24%	17.2%	11.6%

BUSINESS MIX

Estimated 1982 revenue sources:

Service	Revenue ($ millions)	Percent	Includes
Commercial services	$355	53%	Accounting, and employer
Network services	101	15	On-site, and collision
Financial services	86	13	Brokerage, banking, thrift, and ATM
Other services	127	19	Crosstrend, pension, and dealer

GOALS & OBJECTIVES

The revenue goal was to have been $1 billion by 1985, which ADP will not achieve. In addition ADP must increase alternative businesses to its batch accounting/payroll services, which are vulnerable to the personal computer. The business goal is to achieve, in the information services marketplace, the status that IBM has achieved in the computer equipment marketplace. This is unlikely, but ADP is already the largest worldwide supplier of processing services. One of the growing problems in ADP is its lack of acquisition target backlog, which until now has fed much of its growth and penetration of new markets. ADP must now rely more heavily on organic growth which means 10-12% per annum.

CURRENT STRATEGY

ADP is attempting to maintain its hold on the batch services business that has been its core revenue by aggressively pursuing a marketing campaign aimed at the small business segment. So far this has been relatively successful. ADP's network services have also been successful, particularly in the U.S. The best growth area, however, both in terms of performance and potential, is the financial services area, which targets banking, thrifts, pension funds, stock brokers and money managers. ADP is now committed to being a prime competitor in all of these markets (where it does not have a dominant position). ADP also intends to switch from DEC to IBM as a supplier of its on-site and Autonet services; this will take time and investment dollars because of the software commitment, the existence of long-term contracts with end users, and ADP's ownership of 100 DEC 20s, 36 DEC 10s, and two VAX. With a debt/equity ratio of less than 0.15 ADP is strongly positioned for acquisitions on a cash purchase basis, but has increasingly been interested in stock swaps.

CAPABILITIES

ADP has traditionally serviced companies with 20-1,000 employees, but has gradually decreased that target to include clients who employ 8-19 people. These firms are served by Commercial Services, ADP's oldest and largest revenue base. ADP continues to acquire payroll service companies to expand the client base and has brought interactive services to most of its regional centers. The AUTOPAY services are jointly marketed by ADP and 800 commercial banks, most of whom formerly did their own payroll processing.

In 1983, ADP extended its penetration of the brokerage services market through the purchase of GTE's $35 million brokerage business. This has bolstered ADP's loss-making brokerage service but places it squarely in competition with the specialists: QUOTRON, TELERATE, and REUTERS.

Banking and thrift services provide small to medium commercial banks with batch checking, savings, mortgage loan, and money market services. A shared ATM network is being offered nationwide, and is currently losing $400 thousand a month.

Network services are offered in North and South America and Europe, supporting communication services for ADP's other divisions and outside companies. Over 3,700 companies use the network to manage their cash balances. It is yet another service marketed through banks and handles over $1 billion in daily volume.

The special services division includes COMTREND which manufactures intelligent terminals and provides commodity trading information and pension services.

ADP's image in the marketplace is one of good quality and prompt service and most product lines are competitive. ADP avoids, where possible, competition based on price alone and is always at the high end of the price range for a given service.

MANAGEMENT

ADP has gradually been losing its management strength as it has grown. Many of the top line managers have left, leaving new and inexperienced people in their place. ADP has never been weaker. The president's strategy appears to be to replace the old line managers with people he can control. Much of the creative talent and the solid business managers have been lost, and this has begun to show in the revenue and profit growth results.

ADP's divisional management is shown in Exhibit A. This is a very fluid and rapidly changing group of people.

ASSUMPTIONS OF FIRM

ADP thinks of itself as the IBM of the services business and promotes itself as "The Computing Company." It is the largest supplier of batch services worldwide. ADP is concerned that much of the bread and butter business (small company payroll) could be lost to in-house small computers or personal computers. It is also concerned that industry specialists, particularly financial services, such as Merryl Lynch, may become formidable competition. ADP is investing heavily in home banking, shared ATM networks, and other bank-related services. The competition is strong in all of ADP's groups, but so far ADP has been able to hold its own.

INPUT believes that ADP will become very aggressive in the near future in attempting to gain a foothold in microcomputer software companies through acquisitions.

GENERAL CHARACTERISTICS

ADP has controlled its growth by well selected acquisitions that gave it new products, an expanded customer base, and a gradually increasing geographic coverage. The process has been mainly one of selective rationalization of the acquired units into a coherent whole. More recently ADP has begun adopting joint marketing agreements with business entities that are also clients, particularly in industry sectors which are principle targets. These include money managers, banks, thrifts, insurance companies, brokers, and traders. This approach has been very successful and is easily duplicated in other markets.

The keys to ADP's success have been sharp market target definition, an aggressive acquisitions policy, a ruthless rationalization of products (facilities and people, once acquired), and an equally ruthless financial goal setting, monitoring, and control.

ADP is not an easy company to work for and has a strong political atmosphere. There are very few employees that survive at the management level.

EXHIBIT A

GROUP/DIVISION MANAGEMENT

Automatic Data Processing, Inc.
405 Route 3
Clifton, NJ 07015
(201) 365-7300
Josh Weston, President
Public, NYSE
Total Sales FYE 6/82: $669 million
Computer Services Offered: Processing, Professional Services, Turnkey Systems, Software Products

DIVISIONS:

ADP Banking Services Division
Seven Century Drive
Parsippany, NJ 07054
William Turner, Group President

ADP Brokerage Services Division
42 Broadway
New York, NY 10004
Ric Duques, President

ADP Collision Estimating Services Division
2380 W. Winton Avenue
Hayward, CA 94545
Garen Staglin, President

ADP Commercial Services Division
405 Route 3
Clifton, NJ 07015
William Neal, Group President

ADP Comtrend Division
25 Third Street
Stanford, CT 06905
Art Weinbach, Senior Vice President

ADP Dealer Services Division
8101 N.E. Killingworth
Portland, OR 97218
Jason Wiltbank, President

ADP Electronic Financial Services Division
200 Broadacres Drive
Bloomfield, NJ 07003
John Elliott, Group President

ADP International
405 Route 3
Clifton, NJ 07015
Arthur Kranseler, Group President

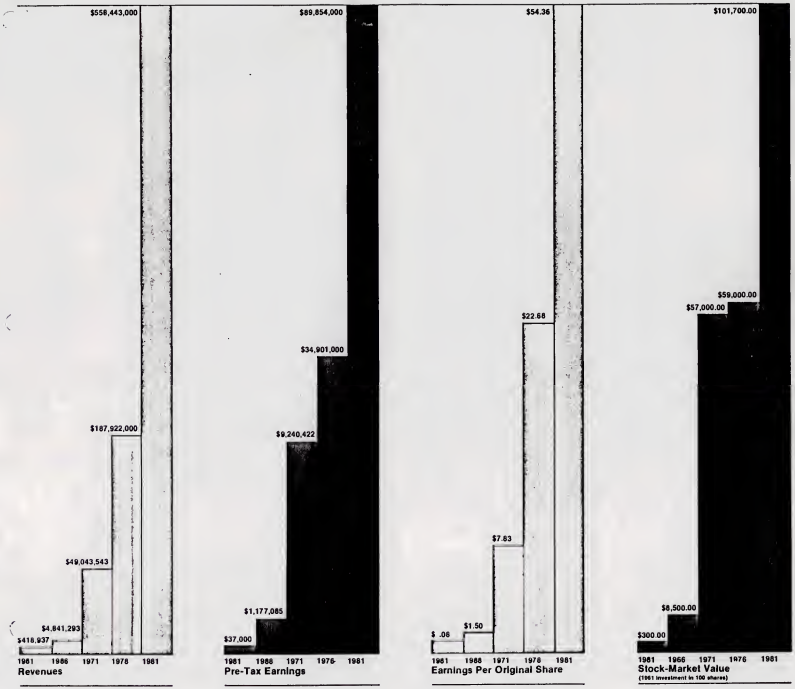
ADP Network Services Division
175 Jackson Plaza
Ann Arbor, MI 48106
William Neal, Group President

ADP Telephone Computing Services
1020 John Street
Seattle, WA 98109
Dick Patterson, Group President

ADP Thrift Services Division
3300 Main Street
Houston, TX 77002
Lynn Mangun, Group President

20 Years
of
Growth

ADP—Growth

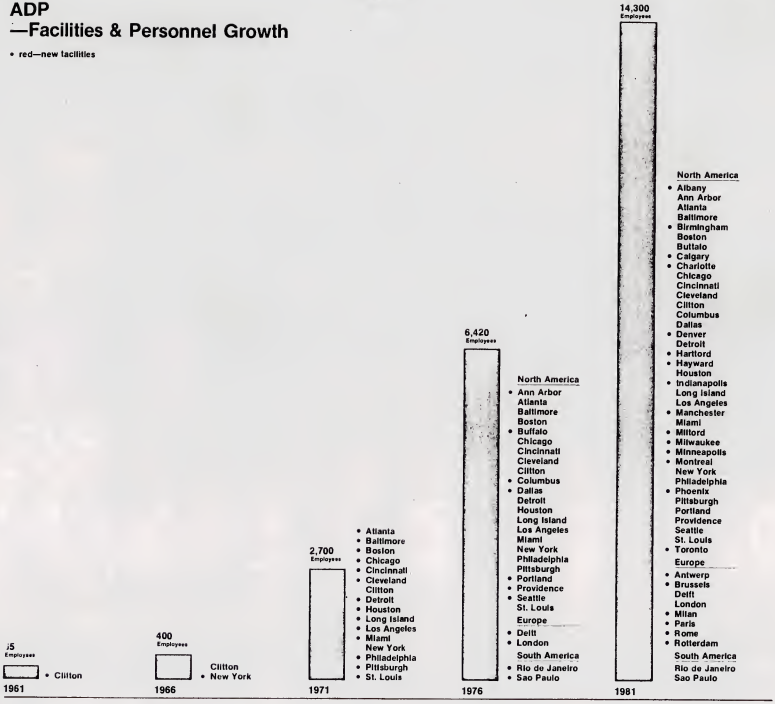

$558,443,000
$187,922,000
$49,043,543
$4,841,293
$418,937
1961 1966 1971 1976 1981
Revenues
$89,854,000
$34,901,000
$9,240,422
$1,177,085
$37,000
1961 1966 1971 1976 1981
Pre-Tax Earnings
$54.36
$22.68
$7.83
$1.50
$ .06
1961 1966 1971 1976 1981
Earnings Per Original Share
$101,700.00
$59,000.00
$57,000.00
$8,500.00
$300.00
1961 1966 1971 1976 1981
Stock-Market Value
(1961 investment in 100 shares)

ADP-Services Growth

1961	1966	1971	1976	1981
Record Keeping Services • Payroll	**Record Keeping Services** • Payroll • ACS bank services	**Commercial Services** • Payroll • ACS bank services • Accounts receivable • Accounts payable • General ledger/ financial raports	**Commercial Services** • Payroll • ACS bank services • Accounts receivable • Accounts payable • General ledger/ financial reports	**Commercial Services** **Employer Services** • Payroll • ACS bank services • Unemployment compensation management • Personnel reporting **Accounting Services** • Accounts receivable • Accounts payable • General ledger/ financial reporting • Interactive accounting services • Manufacturing services **Services to Accountants** • Time analysis • Income tax preparation • Client accounting services
	Brokerage Services • Back office brokerage	**Brokerage Services** • Back office brokerage • Cage management and portfolio management	**Brokerage Services** • Back office accounting • Cage management and portfolio management	**Brokerage Services** • Back office accounting • Cage management and portfolio management • Order entry & message services • Commodity services • On-line marketing services • Stock loan services
			Banking & Thrift Services • Operating & accounting services	**Banking & Thrift Services** • Operating & accounting services • Automated teller services • Pay-by-phone services
			Network Services • Time sharing and proprietary data bases	**Network Services** • Time sharing and proprietary data bases • On-site computing services • International trading services
			Special Services • Dealer services • Real estate management services • International computing services	**Special Services** • Dealer services • Pension & profit sharing plans—International Central Bank & Trust • Health claim administration • Real estate management services • International computing services • Collision Estimating

ADP
—Facilities & Personnel Growth

• red—new facilities



COMPANY PROFILE

AT&T
195 Broadway
New York, NY 10007

Telephone: (212) 393-9800

President: William M. Ellinghaus

Status: Public, NYSE

Year Founded: 1885

Fiscal Year End: December 31

PERFORMANCE

	1978	1978	1980	1981	1982
Revenue ($ millions)	$18,685	$20,208	$22,449	$25,553	$28,986
Percent growth	N/A	8%	11%	14%	13.4%
Net income ($ millions)	$ 5,262	$ 5,655	$ 5,967	$ 6,823	$ 7,279
Percent growth	N/A	7%	6%	14%	7%

BUSINESS MIX

The 1984 business mix of the new AT&T will be vastly different from the 1983 AT&T. With the divestiture of the 22 local telephone companies (responsible for 44% of 1982 revenues) AT&T becomes, (i) a long-distance interconnect company, the size of 130 MCI's, (ii) an R&D facility for hardware and software the size of IBMs (iii), an international marketing and service company aiming at switching and transmission markets in 15 countries, (iv) an information systems and consumer products company with $500 million in assets. This places the company squarely in the fastest-growing information equipment markets.

GOALS & OBJECTIVES

The immediate goal of the new AT&T will be to target the connect market for consumers, businesses, and telephone companies both here and abroad. It intends to dominate this market from the first day of operations. This is certainly going to be true of the consumer telephone and telephone company interconnect markets, but it is only a strong competitor in the wide-open private company network market and a newcomer to the personal computer market.

CURRENT STRATEGY

The strategy for the new AT&T is to start at the network market and work outwards towards the related equipment and services markets through American Bell. The cash cows will be consumer telephone products and the interexchange unit (which absorbs AT&T Long Lines). The key to success is the possession of the networks, both public, shared and private. The private cooperation network is the big open market where IBM, MCI, AT&T and others will clash. It is not clear where cooperate loyalties will be in this fight. The American Bell unit is currently vulnerable because it must now improve with all of the office automation vendors with little software capability in that area.

AT&T's debt/equity ratio is moderate: 0.71. However, the earning power of the new AT&T will be strong and the company is expected to be aggressive in acquiring companies that fit its game plan of serving the office automation and telecommunications markets.

CAPABILITIES

The 1984 AT&T will have:

AT&T International

Marketing and servicing analogue and digital switching products to foreign markets.

American Bell

Marketing, selling and servicing home and small business communications and information systems.

AT&T Interexchange

Providing long-distance interconnect to the 22 telephone companies that are being divested between the U.S. and foreign countries. It will also provide large private networks to corporations video conferencing, transmission and WATS.

Bell Labs and Western Electric

An 18,000 employee R&D facility with 3,300 Ph.Ds. In 1982, total budget was $2 billion. More than 40% of its people are involved with software development. Major markets will be advanced integrated circuits, microprocessors, supporting the local telephone companies, military markets, fiber optics and data systems.

AT&T has an excellent company image in the marketplace but has no visible product image. This is a huge disadvantage in the new markets it will attempt to penetrate. One not so visible advantage, however, is the retail store presence that is easily converted to a microcomputer sales and service outlet market.

MANAGEMENT

The expected assignment of operating company responsibilities on the new AT&T are:

- AT&T Communications.
- AT&T International: Robert Sageman (President).
- AT&T Information Systems: Charles Marshall (Chairman).
  - Product Planning Development: Frank Vigilante (President).
  - Sales & Marketing: Robert Casale (President).
  - Services Division: Bruce G. Schwartz (President).
- AT&T Bell Labs: Ian M. Ross (President).
- AT&T Western Electric: Donald E. Procknow (President).

ASSUMPTIONS OF FIRM

AT&T believes it has a controlling position in the long-line telecommunications business which will fund it for entry into the new product markets (American Bell). The divestiture concentrates management attention on these new markets, while preparing to resist the competitive thrusts of companies such as MCI in its established markets and IBM in the new interconnect markets. The new thrust of AT&T brings it squarely into competition with IBM. It is uncertain what the outcome will be since the two companies have complementary skills and markets.

GENERAL CHARACTERISTICS

AT&T will be very aggressive in acquisitions, joint ventures, and joint marketing agreements in the fields of information systems, software, service and telecommunications. The company must essentially reconstruct its operations, refocus its markets, and redefine its role to corporate America. This will be a difficult task in the information systems business because of their image as a telecommunications company. It will be an easy task in the interconnect market for the same reason.

AT&T will start 1984 having been almost cut in two and with a top heavy corporate management structure. It will take a long time to turn this huge overhead, which will mean less profit than could otherwise have been achieved.

The unique advantage that AT&T has in the coming years lies in their image and capabilities in communications, which will be the driving force behind office automation, data processing, and corporate local area networks. This is a tremendous marketing advantage.

COMPANY PROFILE

CONTROL DATA CORPORATION DATA SERVICES
8100 34th Avenue, South
Minneapolis, MN 55440

Telephone: (612) 853-8100

Vice President Data Services:
W. H. Bruning

Status: Public, NYSE

Year Founded: 1957
(Services since 1961)

Fiscal Year Ends: December 31

PERFORMANCE

	1978	1979	1980	1981	1982
Revenue ($ millions)	$408	$474	$547	$616	$674
Percent growth	20%	16%	15%	13%	9%
Net income ($ millions)	------- Not available (but profitable) -------				
Percent growth					

BUSINESS MIX

The approximate breakdown of the 1982 revenue was as follows:

	Percent of Total
Network Information Services	22%
- Timesharing	10
- Batch processing	2
- Brokerage	11
- Financial	24
Cybernet	24
Arbitron	11
Ticketron	11
Other	9

GOALS & OBJECTIVES

CDC Data Services is the main (but not the only), information services supplier within CDC corporate. Its goals and objectives are subordinated to the corporate goals (which are stated as providing operational effectiveness for corporate America, as well as corporation in the areas of education, training, small business and public service to depressed areas). Data services have targeted vertical service markets that are application-dependent: this has meant many small and basically independent operational units.

CURRENT STRATEGY

CDC Data Services is looking for ways to:

- Leverage the value of the data that they capture as a part of one service into other service areas/markets.
- Develop synergy between their separate operational units either at the data or the service level.
- Participate in the growth of the personal computer hardware and software markets, using the hardware (PCs) as workstation entry points to the CYBERNET network and the software as a product which can be distributed, supported and mainframed through the network.

CDC's debt equity ratio is very high: 2.17. The company can ill afford the money that is being poured into PLATO, the loss making educational service.

CAPABILITIES

In January 1982 CDC reorganized data services into four units:

- Network Information Services (which contains Business Information Services, Brokerage Transaction Services and Financial Information Services with a combined revenue base of $303 million).
- Cybernet (providing scientific and engineering application services from five North American data centers and 13 overseas locatins with US/Canadian revenue of approximately $161 million).
- Arbitron (which provides audience ratings and measurement services to more than 6,000 clients, principally television stations, radio broadcasters and advertising agencies, with revenues of approximately $74 million).
- Ticketron (which has three subsidiaries and a subsidiary - Station Business Systems - which provides reservation and ticketing for sports/entertainment events, wagering, lotteries, and accounting, word processing and administration services with revenues of approximately $75 million).

Exhibit A shows the main applications and data bases offered in the network.

CDC has excellent product image in the many marketplaces that the company serves. CDC is a survivor and has a unique combination of vertical market services, many of which are open to increased automation (e.g., Arbitron, Ticketron).

MANAGEMENT

The management of the company finds itself in three totally separate businesses: computer equipment manufacture, largely for the military, government and scientific communities; computer services supply to a mixture of unrelated commercial marketplaces; financial credit and related services, the main product of which is money. The company is autocratically run by William C. Norris (72) founder and still Chairman and Chief Executive Officer. The average age of the 25 officers in the company is 54.

Exhibit B shows the current organization structure.

ASSUMPTIONS OF FIRM

The company sees itself as a supplier of general purpose digital computer options to large scale engineering, scientific and operational applications within educational, industrial, government and military institutions, where the in-house applications expertise will weigh heavily in the selection process. CDC sees itself as a prime competitor in all of the submarkets.

Data Services and Commercial Credit are seen at the macro level as tools to accelerate and broaden the acceptance and application of CDC's expertise.

GENERAL CHARACTERISTICS

CDC sells its services through its own direct sales organization, with each operational unit selling its own products (little cross support).

Its acquisition policy has three prongs: vertical market service businesses (e.g., CIC, Tabershaw Associates, EIS, ISD, etc.), the new drive into software companies (e.g., TRES Computer Systems, Holguin Associates) and CDC's Venture Capital Fund (minority participations in fledgeling companies that may or may not have obvious relevance to CDC).

CDC has become a force to be reckoned with in the services area. Not only do they have strength in the traditional service markets (processing, etc.), but they have made a commitment to becoming a force in the future service markets (that will be consumer-driven) by their involvement in small businesses, educational programs and personal computer markets.

Except for IBM, CDC is the only hardware manufacturer with great strength in the service market. This is an advantage in that it lends credence to the company's long-term survival prospects.

COMPANY PROFILE

COMPUTER SCIENCES CORPORATION
650 North Sepulveda Boulevard
El Segundo, CA 90245

Telephone: (213) 615-0311

President: William R. Hoover

Status: Public, NYSE

Year Founded: 1959

Fiscal Year End: April 1

PERFORMANCE

	1978	1979	1980	1981	1982	1983
Revenue ($ millions)	$ 276	$ 342	$ 453	$ 601	$ 630	$ 695
Percent growth	18%	24%	32%	33%	4.9%	10.3%
Net Income ($ millions)	$14.0	$14.2	$22.7	$24.7	$17.8	$17.9
Percent growth	20%	1%	60%	9%	(8%)	1%

BUSINESS MIX

1983 Revenue Source

Systems Group: 76%

Data Services
(including INFONET): 24%

Industry Markets

Federal Government	57%
Manufacturing	13
Services	9
State and Local Government	8
Retail/Wholesale	4
Banking and Finance	3
Utilities	2
Medical	2
Other	2

GOALS & OBJECTIVES

The primary goal is to be the largest hardware-independent systems engineering company in the world. This essentially means applying computer and communications technology to solving clients' needs for information, mainly in the areas of software, communications systems engineering, and operational management systems architecture. The company's objectives are (1) to continue to pursue government DOD professional service contracts which is the largest source of revenue, while improving margins to 9%; (2) try to halt the decline in INFONET revenues while improving Data Services margins (currently 4.1%). Cost reduction has been implemented across the board in Data Services, but no improvement has been achieved in CSC's lack of commercial business know-how.

CURRENT STRATEGY

CSC has no clearly defined strategy other than to continue doing what it has always done in contract service business with the federal government. This is where the company's strength is and it is unlikely that it will change. There is a drive to try and establish INFONET as a data value-added network for private corporations. This will probably not succeed due to the same lack of top management understanding of the commercial marketplace that has plagued CSC's other attempts at commercial products and services (e.g., banking software packages, computicket, Computer Sciences Institute, and now problems with the Itel acquisition). CSC should consider divesting itself of the data services divisions altogether and concentrating on its mainstream capability.

CSC has a high debt/equity ratio: 1.12. The company is reaching a decision point where it must decide what role it is to play in the markets of the late 1980s. INPUT believes that CSC will unfortunately continue to dabble unsuccessfully in the commercial marketplace.

CAPABILITIES

The company groups its activities (for reporting purposes) into two major groups:

Systems Group

Includes the applied Technology division (operations and maintenance for large and small systems), Defense Systems division, (software development, weapons simulation, satellite/submarine communications, TRIDENT, Aegis, P-3C and Knox-class frigate modernization), Systems International division (Asia, Middle East, South America), Systems Science division (NASA, FAA), Energy Research division (DOE), Systems division (commercial systems design) and CSC Europe (systems design and consulting).

Data Services Group

Includes Government Health Services (Medicaid/Medicare facilities management), INFONET (see Exhibit A), Business Services division (paid prescriptions, tax processing, on-line order processing, batch processing of accounting applications, hospital turnkey systems, i.e., Infocase).

CSC is perceived by the marketplace as a professional and competent company. The company has great strength in professional services, but has been unable to translate this into the commercial marketplace, despite having a good image.

MANAGEMENT

CSC has suffered from a corporate personnel policy that is oriented towards the government contract business: hire temporary staff to cover a given contract then let them go; turnover is not important. (This does not work in the commercial world). The principal managers and their operational responsibilities are given in Exhibit B).

ASSUMPTIONS OF FIRM

CSC believes that it is a mistake to be first in any new market: better to let the market develop and mature, then enter. Size is important: the best business opportunities go to the biggest players.

CSC would like to be an ADP of the professional services business (image, size, profitability, competitiveness) but is gradually being overhauled by EDS which is better managed. CSC should remove itself from the commercial market, where it has been unable to grow, where it does not understand the needs, and where its management has the least experience.

GENERAL CHARACTERISTICS

CSC markets its services by direct sales only. It has been extremely successful in bidding for (and winning) major defense and medical care contracts. Systems engineering, systems management, contract programming, and military communications have been its strengths. CSC has not exploited these strengths in the commercial world, partly because its systems capabilities do not translate readily (e.g., UNIVAC rather than IBM systems ability) and partly because military specifications have little to do with mundane commercial requirments. However, its communications systems engineering could easily be exploited commercially.

CSC's acquisitions have been mainly commercially oriented (in an attempt to acquire the skills it lacks). Some have been successful (e.g., TACS-tax processing and PAID prescriptions). It is likely that CSC will continue to acquire commercially-related businesses in the coming years.

CSC has no unique skills and is no longer the leader in its field: EDS has rapidly taken over the number one spot in DOD professional service business.

EXHIBIT A

COMPUTER SCIENCES ORGANIZATION CHART
OPERATIONAL DIVISIONS

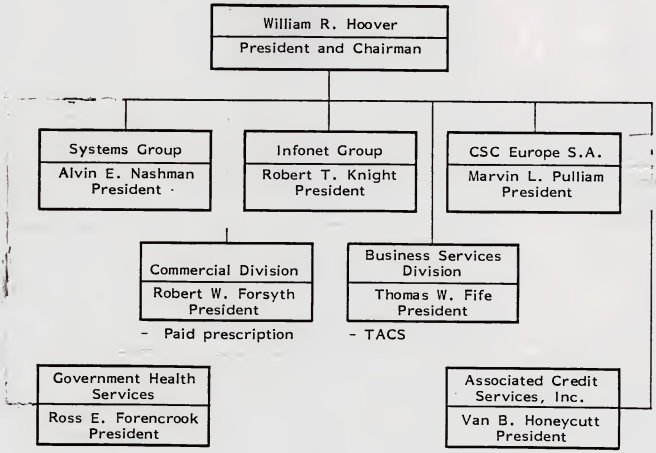


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EXHIBIT B

INFONET NETWORK PROFILE

APPLICATION AREA/PRODUCT NAME
• OPERATING ENVIRONMENT – UNIVAC 1108, CSTS (GPS, BASIC SUBSYSTEMS)
• DISTRIBUTED NETWORK SERVICES (DNS) (INFOSTATIONS 50, 200, 300, 400, 500, 600) – DATA ENTRY – DATA MANAGEMENT – SCREEN FORMATTER – INQUIRY AND REPORTING
• PROGRAMMING LANGUAGES – APL – COBOL – ASSEMBLY – FORTRAN – BASIC – PL/1
• DATA MANAGEMENT SOFTWARE – MANAGE – INQUIRY AND REPORT WRITING SYSTEM – SYSTEM 2000
• DATA BASES AVAILABLE – SECURITIES DATABASE (STOCKS, OPTIONS, BONDS) – SITE II (DEMOGRAPHIC DATA) – CITIBASE (CITIBANK ECONOMIC DATA BASE) – LSH (OFFSHORE OIL BID HISTORY) – SEARCH (OFFSHORE OIL/GAS RETRIEVAL COSTS) – CURRENCY CONVERSION
• FINANCIAL APPLICATIONS/TOOLS – FLARES II (FINANCIAL LANGUAGE FOR ANALYSIS AND REPORTING) – FIPABS (FINANCIAL CONSOLIDATIONS AND BUDGETING)
• SCIENTIFIC AND ENGINEERING – KSHEL (STRESS ANALYSIS) – TRIFLEX (PIPING ANALYSIS) – SUPERB (STRUCTURAL ENGINEERING) – GASP (STRUCTURAL ANALYSIS) – SDRC MECHANICAL DESIGN LIBRARY – DMJM (CIVIL ENGINEERING)

APPLICATION AREA/PRODUCT NAME
• PROJECT MANAGEMENT – MISTER – SPRED 2
• SIMULATION MODELING/ECONOMIC FORECASTING – DISTAT (LANGUAGE FOR STATISTICIANS AND ECONOMETRICIANS) – SCICONIC (LINEAR PROGRAMMING) – GPSS-V (SIMULATION TOOL) – AUTOBJ (BOX JENKINS)
• MATHEMATICS AND STATISTICS – SPSS (STATISTICAL PACKAGE FOR SOCIAL SCIENCES) – P-STAT & SCSS (CONVERSATIONAL STATISTICAL ANALYSIS) – SAS (STATISTICAL ANALYSIS SYSTEM) – BMDP (UCLA BIOMED SERIES) – MATHPACK (78 MATH SUBROUTINES) – MPS-III (SOLVES LINEAR INEQUALITIES)
• INDUSTRY SPECIFIC – GAINS (INVENTORY PLANNING AND CONTROL SYSTEM) – CORES (COAL RESERVE EVALUATION SYSTEM) – RISK (VOLUMETRIC RESERVE CALCULATIONS)
• GRAPHICS – ENCORE – DISSPLA – GRAPH PAC – SKETCH – IGL (INTERACTIVE GRAPHICS LANGUAGE)
• IBM VM/SP AND MVS/SP – ABEND-AID – IBIS – ACF 2 – PANVALET – CAPEX OPTIMIZER – SAS – CMF – SYNCSORT – EASYTRIEVE – TELL-A-GRAPH – FAST DUMP RESTORE – TSO – FULL SCREEN EDIT – WYLBUR

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COMPANY PROFILE

DUN & BRADSTREET
299 Park Avenue
New York, NY 10171

Telephone: (212) 593-6800

President: Charles W. Moritz

Status: Public Company, NYSE

Year Founded: 1930

Fiscal Year End: December 31

PERFORMANCE

	1978	1979	1980	1981	1982
Revenue ($ millions)	$ 763	$ 952	$ 1,176	$ 1,331	$ 1,462
Percent growth	14%	25%	24%	13%	9.8%
Net income ($ millions)	$ 70.0	$ 88.5	$ 102.4	$ 121.5	$ 142.1
Percent growth	20%	26%	16%	19%	16.9%

BUSINESS MIX

1982 revenue sources were as follows:

Source	Revenue ($ millions)	Percent
Business Information Services	$651	45%
Publishing	483	33
Marketing Services	227	15
Broadcasting	101	7

GOALS & OBJECTIVES

Dun & Bradstreet has moved to establish itself as the leading marketing information and business services supplier to corporate America. Like other successful companies, this is based on a very sharp focus on the company's objective, defined through its products and services, and implemented through computer technology. The strategy also calls for the divestiture of businesses (however profitable) that do not fit the goal: these have included Fantus, Corinthian Broadcasting, Meisel Photochrome, Teleflora, Life Extension Institute, T.Y. Crowell and William E. Hill, all at a profit.

CURRENT STRATEGY

The corporate strategy is to gather, maintain, and market information that assists corporations and businesses to understand, target, and reach the markets for their products. These services are aimed at exploiting information data bases on individuals, households, and firms and corporations as to their location, purchasing habits and power, credit history, and ongoing needs. Dun & Bradstreet has created corporate resource units that identify and then create and maintain these data bases. The operational divisions market the end product and bear the cost of their maintenance. Within Marketing Services, Business Information Services and Publishing there are enough vertical/industry-specific markets to be exploited to absorb all of the $450 million cash (net of tax) obtained by the sale of the Broadcasting division.

Dun & Bradstreet's debt/equity ratio is a low 0.29 and places it in a strong position to continue to acquire companies that fit the above game plan, either because they own data (preferable) or distribution channels.

CAPABILITIES

Business Information Services

Includes Dun & Bradstreet Credit Services, National CSS, McCormack & Dodge, Plan Services (administration and claims payment services to underwriters of group health/insurance plans), Commercial Collections, and Zytron (COM services).

Publishing

Includes Reuben Donnelly (yellow pages advertising for telephone companies), Technical Publishing (specialized magazines), Official Airlines Guide, Funk & Wagnalls (encyclopedias and other reference tomes) and Moody's (financial ratings on corporate and municipal paper).

Marketing Services

Includes Donnelly Marketing (direct marketing services), Dun's Marketing Services (management reference books, direct response information services, sales prospecting), Donnelly Marketing Information Services (demographic and other market data), Financial Services Industry Group (banking services), International Marketing (worldwide publicatons and marketing services), and Salesnet (computerized telemarketing on behalf of business clients).

Dun & Bradstreet has formidable strength in its marketplace and has an IBM-like image of know-how and leadership. The company is building a spectrum of solidly implanted products and services that will be difficult to compete against.

MANAGEMENT

The company is very capably managed and has depth in all of its divisions. The high average age of top management has not improved the pace of innovation nor the move to automate many of the delivery methods for Dun & Bradstreet's services. Thirty percent of corporate management comes from acquired companies including the chairman and last two presidents.

Dun & Bradstreet tries to let acquired management teams operate unhindered, adding cash resources, marketing skills and the support of its many divisions in reaching new markets. This has not stopped National CSS from losing money.

ASSUMPTIONS OF FIRM

Initially Dun & Bradstreet saw itself as a publisher. Now the concept of electronic "publishing" is firmly embedded in the company, where "publishing" almost equals data base services. Because the company is so well grounded in the techniques of publishing, it is more efficient and more capable than other data base service companies that come to the market from computer services. For example, there are many remote computing companies that sell access to census data that do not understand the server function that goes with such a data base. Dun & Bradstreet is very innovative and has successfully launched 200 new products and services in the last three years which produced $140 million of revenue in 1982 alone.

GENERAL CHARACTERISTICS

Dun & Bradstreet markets its services exclusively through direct sales outlets. Its acquisitions are divided by Dun & Bradstreet into "standalone" (Plan Services, Technical Publishing, Zytron, National CSS, McCormack & Dodge) and "tuck under" (Air Tariffs, Alcon, Industrial Distribution and Contractor). "Tuck unders" are merged into existing divisions.

In 1983 Dun & Bradstreet will spend $80 million in developing new products and services and is looking to purchase both large corporations and small companies to expand into market segments targeted by Dun & Bradstreet in the business and market information services areas. Likely condidates include network-based service companies (e.g., Tymshare), bank service companies (e.g., Kirchman), business software companies (e.g., MSA), and market data base companies (e.g., Information Resources).

New products and services recently launched include DunsNet, Salesnet and an electronic edition of the Official Airline's Guide, all of which are delivered by and use a network. Dun & Bradstreet will shortly begin to extensively use local area networking, microwave transmissions, satellite transmission, and integrated voice/data systems. This unique data-based service approach will become a vast money spinner in the coming years.

COMPANY PROFILE

EQUIFAX INC.
P.O. Box 4081
1600 Peachtree Street, N.W.
Atlanta, GA 30302

Telephone: (404) 885-8000

President: J. V. White

Status: Public, NYSE

Year Founded: 1899

Fiscal Year End: December 31

PERFORMANCE

	1978	1979	1980	1981	1982
Total company revenue ($ millions)	$ 308	$341	$372	$410	$437
Computer services revenue ($ millions)	$ 83.3	$102	$115	$128	$141
Percent growth	NA	22%	13%	11%	10%
Total company net income ($ millions)	9.5	10.3	10.5	15.8	12.2
Percent growth	NA	9%	2%	50%	(23%)

BUSINESS MIX

The breakdown of the 1982 revenue is estimated as follows:

Motor vehicle registration processing services	$83.6 million
Medical turnkey systems and processing services	4.0
Credit information services	$53.4 million
	$141.0 million

GOALS & OBJECTIVES

The goal is to expand credit services business geographically in the U.S. and Canada by acquisition, enhance existing credit and other services and to make life and health underwriting information available via distributed processing. The principle objective in 1983 was to expand the company's EQUINET network to more than 135 locations.

CURRENT STRATEGY

The long-term strategy is to "seek acquisitions that add value to our base services, make use of our established capabilities and fit well into our mix of businesses." During 1983 the emphasis was on cost containment: total employment was reduced, the number of office locations was halved, but at the same time the geographic coverage of the credit service was increased (three new bureaus in 1983 including the West Coast). In preparation of new acquisitions the April 1983 annual meeting of shareholders increased authorized shares from 7.5 million to 25 million. A big push into automating risk management will soon get underway.

INPUT believes that EQUIFAX is a good example of a "smoke-stack" services company: high on manual processing, low on automation and the management skills needed for service markets in the next 10 years. The company's very low debt/equity ratio (0.1) puts it high on the list of candidates for both acquiring other companies and becoming the target of an acquisition.

CAPABILITIES

EQUIFAX provides services (some automated, some not) in three areas:

Risk Management Services

This group provides the insurance industry with information on underwriting, appraisals, claims adjustment, property valuation, health screening, employment selection, loss control and safety programs. The Dataflo subsidiary of this group provided remote processing services to automobile insurance companies with $83.6 million in 1982.

Financial Control Services

This group provides credit reporting (remote and local) via data base inquiry to U.S. and Canadian banks, financial groups, retail and credit brokerage. Collection services are also provided. The Credit Bureau, Aerofax and Credit Bureau Marketing are part of this group.

General Business Services

This group includes general market research, energy audit and printing services. The acquisition of EVERCOM added utility inducting auditing and a debtor data base.

EQUIFAX does not have an outstanding market image and its products and services are not high quality. The company is losing momen tum and will find the market difficult in the near future.

MANAGEMENT

The company's executive officers have an average age of 55 years.

- W. Lee Byrge - Chairman - 64.
- J. V. White - President - 58.
- J. G. Sawyer - Vice President - 58.
- Ralph Jones - Vice President - 56.
- W. Aitken - Vice President - 57.
- J. Baker - Vice President - 43.
- E. Merrigan - Vice President - 49.
- H. Phillips - Vice President and Treasurer - 54.

ASSUMPTIONS OF FIRM

EQUIFAX has clearly perceived the potential for companies in the information services business and has evolved over the last ten years from a company essentially dependent on manual methods for gathering, processing and transmitting information to one which derives half of its profits and one-third of its revenues from automated services. The largest revenue base - Risk Management Services - is now slated for automation, a process that will take several years and one that will almost triple profit contribution. In the meantime more acquisitions can be expected.

GENERAL CHARACTERISTICS

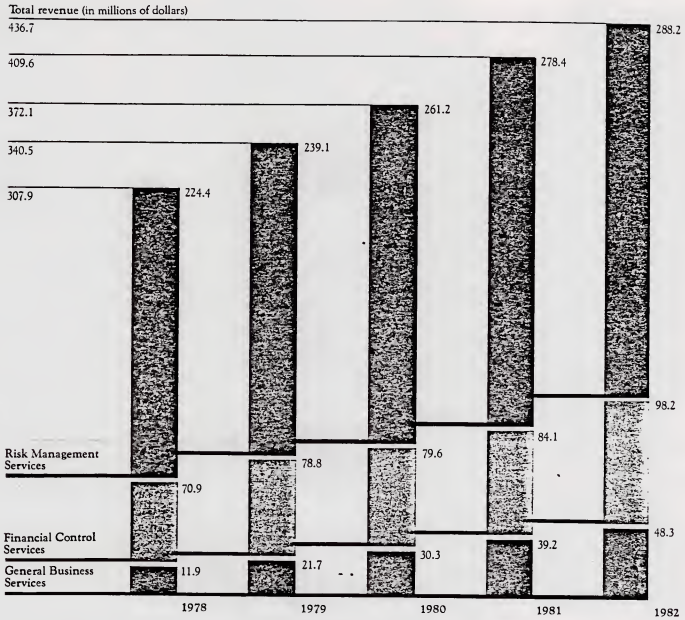
In 1982 three companies were acquired:

- Credit Bureau Marketing (credit card application processing, credit promotions and related services).
- Enercom (utility energy audit systems and professional services, along with software and engineering, and debtor data base).
- Quick Test (market research services).

Three credit bureas were purchased in 1983 in Oregon, Washington, and Alaska. Divestitures include Medical Administration processing (the Systematics to Compu-Med Systems) and Gay & Taylor (claims adjusters to Seibels, Bruce Group).

EQUIFAX has no unique skills or products for success in the coming years.

REVENUE CONTRIBUTION by major business segment



Note: Total annual revenue figures include an "other income" category not portrayed on this graph.

1978 through 1981 revenue contribution has been restated to reflect the segment reclassification of medical administrative services from general business to financial control services.

STOCK PRICES AND DIVIDENDS*

	1982			1981			1980			1979			1978		
	High	Low	Div	High	Low	Div	High	Low	Div	High	Low	Div	High	Low	Div
First Quarter	15.81	11.38	.325	10.88	10.06	.300	10.56	8.56	.275	12.25	10.25	.275	13.31	12.50	.275
Second Quarter	16.69	14.69	.325	13.19	10.44	.300	11.94	8.50	.300	12.00	10.50	.275	14.25	12.56	.275
Third Quarter	19.38	15.25	.325	12.69	11.31	.300	11.75	10.81	.300	12.00	10.75	.275	13.50	11.88	.275
Fourth Quarter	28.38	17.50	.330	11.69	10.88	.300	11.94	9.88	.300	11.13	9.56	.275	12.50	10.19	.275

*Reflects two-for-one common stock split effected in the form of a stock dividend.

COMPANY PROFILE

FLORIDA SOFTWARE SERVICES (KIRCHMAN)
711 Semoran Boulevard
Altamonte Springs, FL 32701

Telephone: (305) 831-3001

President: Kenneth Kirchman

Status: Private

Year Founded: 1968

Fiscal Year End: March 31

PERFORMANCE

(Approximate, since FSS is very secretive):

	1978	1979	1980	1981	1982
Revenue ($ millions)	$ 13	$ 16	$ 20	$ 25	$ 32
Percent growth	N/A	23%	25%	25%	28%
Net income ($ millions)	$ 2.3	$ 2.6	$ 2.8	$ 3.0	$ 4.5
Percent growth	N/A	13%	7%	7%	50%

BUSINESS MIX

FSS has two divisions: Florida Software Services (which markets all of the software products) and Florida Computer Services (which provides processing services). All of the revenue of the company comes from the banking/finance sector. The software products divisioin produces 85% of the company's revenue. This proportion is steadily increasing.

GOALS & OBJECTIVES

The company's goal is to become the leading supplier of software products to the banking and financial world. The services business is profitable and is uesful in keeping contact with the 70 State of Florida banks it services but is not a primary goal of the company. Nearly 2,000 banks use FSS software nationwide and there are installations in New Zealand, Canada, Australia, and Europe.

CURRENT STRATEGY

All of FSS's revenue comes from commercial banks and thrift institutions. FSS must fend off rival software from ANACOMP, HOGAN SYSTEMS, and ADP. The company feels confident it can do this because ANACOMP forny into banking software has stalled, ADP is concentrating on remote computing rather than software and HOGAN has a much smaller user base. FSS must now integrate its systems and improve the interfacing of its many (and diverse) modules. Several of the systems are due to a major R&D investment if they are to maintain their competitiveness (particularly vis a vis HOGAN and ANACOMP). FSS's strategy is to work through user committees (associations of banks and thrifts - FURST group) that jointly define with FSS the specification of their needs. This has been very successful.

FSS's financial position is believed to be strong but no details are available. INPUT believes the company will continue to grow its business organically without substantial contributions from acquisitions.

CAPABILITIES

The 14 major software products available from FSS are:

- Central Information File (CIFII): application master file data base.
- Certificates of Deposit (CDIII): audit trail/clerical reporting system.
- Check Reconciliation System: covers entire checking process from start to finish.
- Commercial Loan: loan portfolio and individual loan handling.
- Dealer Flow Plan II: interest on balance, inventory audit, credit lines, etc.
- Demand Deposit IV: DDA accounting for DDA accounts and financial reporting.
- Financial Management/General Ledger: individual chart of accounts and financial reporting.
- Installment Loan IV: loan selection, accrual, rebate, and payment.
- Mortgage Loan Extended: warehousing and investor reporting.
- Payroll: standard.
- Savings System III: savings account processing.
- Stock Transfer: company stockholder tracking.
- Supplies Inventory Control: self explanatory.

All offer a multibank/multibranch capability and are priced between $3,000 and $40,000 on IBM or Burroughs systems.

The Computer Services Division offers all of the above on a remote processing basis based on data centers in Tallahasee and Altamonte Springs.

FSS has excellent market image, both from a company and a product standpoint; the company is a formidable competitor that now finds itself in a much more difficult market with tougher competition.

MANAGEMENT

The company is autocratically run by the founder and Chairman, Ken Kirchman. The company's principal officers are as follows:

- Lon Garber, President.
- Charles Nelson, Vice President, Finance.
- Karl E. Righter, Vice President, Sales.

Very little information could be gathered from the company concerning the background of the managers.

ASSUMPTIONS OF FIRM

immediately focused the company's attention on the largest potential software market - banking and finance. This has been further referred over time. FSS believes it has established itself as the industry's leading banking software services group with a lock on many of the small to medium banks (sole supplier status). It believes this can be continued by out performing the competition.

This remains to be seen. Because Kirchman appears not to wish to make use of going public to fund the 1990's R & D efforts, FSS could be bypassed by several smaller, but more narrowly focused companies who have gone public.

GENERAL CHARACTERISTICS

The company sells all of its products and services by direct sales methods. Minor exceptions include the licensing of its software to individual bureaus on a royalty basis and with limited geographic coverage. The company has developed nearly all of its products internally, has grown itself organically and has focused its marketing more and more narrowly as time has passed. Prior to 1979 FSS offered facilities management to the medical industry; the division was phased out.

The unique strength of the company is its relations with the banking community. The FURST group (Florida Software Services Users Researching Systems Together) is a user group sponsored by FSS with a membership of over 2,000 banks which meets annually to provide FSS with feedback on how systems might be enhanced. Over 100 computer equipment vendors exhibited products at the 1982 FURST conference. This forum has immense value for R&D and marketing.

COMPANY PROFILE

GENERAL ELECTRIC INFORMATION SERVICES COMPANY (GEISCO)
401 North Washington Street
Rockville, MD 20850

Telephone: (301) 340-4000

President: Walter W. Williams

Status: Wholly owned subsidiary of General Electric

Year Founded: 1964

Fiscal Year End: December 31

PERFORMANCE

(Estimates)	1978	1979	1980	1981	1982
Revenue ($ millions)	$256	$320	$390	$475	$550
Percent growth	25%	25%	22%	22%	16%
Net Income ($ millions)	$ 36	$ 48	$ 58	$ 76	$ 88
Percent growth	30%	33%	21%	31%	16%

BUSINESS MIX

1982 Sources of Revenue	$ millions	Percent
Processing services	$424	77%
Professional services	83	15
Software products	33	6
Turnkey systems	10	2
	$550	

Industry	Percent
General business	30%
Manufacturing	35
Banking and Finance	12
Energy/Petroleum	10
Distribution	9
Other	4

GOALS & OBJECTIVES

GEISCO aims to achieve $1.5 billion by 1986, which means more acquisitions since organic growth will only generate $400 million. This leaves revenues equivalent to GE's current (1982) size to be found over the next four years - difficult at best. GEISCO has targeted "the acquisition and resale of information as a commodity," electronic mail (of which GE used to have 48%), factory automation, CAD/CAE, banking, and international finance. Software products, PCs, CAD/CAE systems and robotics are seen as tools to achieve these ends.

CURRENT STRATEGY

The main sales strotegy is to develop a brood ronge of off-the-shelf ond customized solutions thot motch all facets of the target users' needs. To do thot GE hos purchased softwore componies thot possess whot it believes is port of its needs (generol ledger ond accounting, doto base monogement system, outomoted engineering, energy monitoring, etc.). GEISCO will offer the use of such softwore off of the network but will olso hove o softwore morketing firm sell it os softwore products (EXECUWARE).

GEISCO will concentrote its efforts on the morkets that hove provided it with its growth (ond with which it feels most ot home): monufocturing ond reloted opplicotions, finonce/banking, ond generol purpose timeshoring. It recently purchosed $10 million of IBM PCs to occelerote the ovoilobility (ond configurotion) of the product to its customers.

GEISCO's debt/equity rotio is lost in FEs overoll finonciol stotement, but the company will continue to concentrate its ocquisition efforts on software and microcomputer turnkey componies.

CAPABILITIES

GEISCO provides interoctive ond remote botch processing, professionol services, opplicotions softwore products, ond turnkey systems to opproximotely 6,000 clients worldwide, primorily in bonking, finonce, monufocturing, ond energy morkets. Services include industry-specific opplicotions and general occounting/administrotion, decision support, and monagement reporting. The totol librory of opplicotions numbers approximotely 2,000.

Three supercenters process the doto fed to and from the network, in Rockville (MD), Springfield (OH), ond Amsterdom (The Netherlonds). A totol of 450 processors of doto and communications ore used, including 48 Honeywell DPS 8/70 systems ond three IBM 3081s, under MVS, providing o separate service.

The main service is the MARK III interactive ond remote botch service (successor to the originol MARK I service introduced in 1965), supplemented by on increasingly lorge professionol services group, softwore products subsidiories, and turnkey systems. Monufocturing represents 35% of GEISCO's business, the largest share.

Sixty percent of revenues ore generoted in North America, 30% in Europe ond the Middle East, and 10% in the For Eost. Europe hos become the slowest growth area.

Applications ovoilable on the MARK 3000 Service ond MARK III Service are shown in Exhibits B ond C respectively.

GEISCO's company and product images ore excellent and in the same league as IBM's thonks to the porent company's strength, the worldwide network and GEISCO's position as the number one remote computing services compony.

MANAGEMENT

Effective October 21, 1983 GEISCO reorganized "to make GEISCO more flexible, responsive and entrepreneurial." This essentially meant moving away from industry marketing (banking, insurance, etc.) towards a geographically responsible sales organization: areas, regions, districts, and branches. Some large targets have their own sales organizations: CPAs, telephone companies, financial institutions, and national accounts. A single software company (Software Services Company) bundles its software acquisitions, and another (General Electric Professional Services Company) the contract services. An organization chart is attached in Exhibit A.

ASSUMPTIONS OF FIRM

GEISCO believes it can become a sole source supplier of interactive computing services by rapidly broadening its software application capability. It does not appear to have targeted the private corporation network accurately. GEISCO is the largest worldwide remote computing services company thanks to its strength in non-U.S. markets, where it also dominates. It did not seem to have had difficulty growing until 1982 when targets were not met.

GEISCO's principal competition comes from CDC, Boeing Computer Services, Tymshare, and COMSHARE, but it sees itself ultimately competing with AT&T and IBM.

GENERAL CHARACTERISTICS

GE's sales policy is to handle mainstream business through direct sales, and ancillary opportunities through marketing agreements with third parties.

Acquisitions, aimed at filling out GE's applicational coverage, have included: Lambda Technology (professional services in banking, finance, and manufacturing), Software International (accounting, financial application software), Network Consultants (software and professional services in banking and finance).

Divestitures have included Genigraphics (computer generated slides) and Enercom (utility industry software).

GEISCO's principal key to success has been its size, its captive revenue ($95 million in 1982 from GE companies worldwide) and its strong cash flow. It appears that GE's concentration on factory automation will do for CALMA and GEISCO what McDonnell Douglas has done for MCAUTO: carry them through the formative years of factory automation at a profit.

EXHIBIT A

GEISCO ORGANIZATIONAL CHART

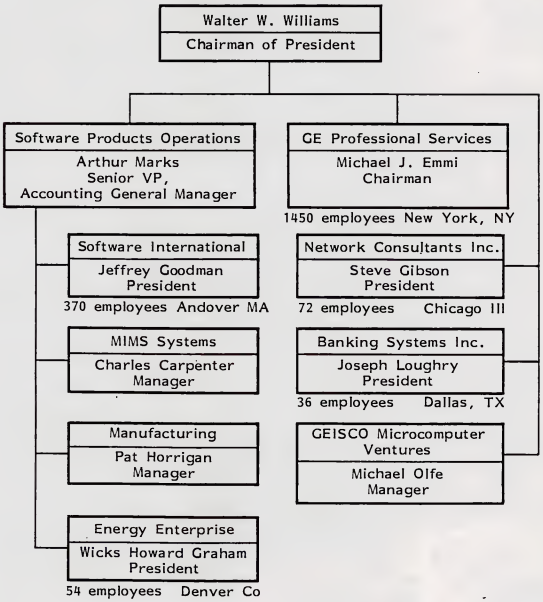


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EXHIBIT B

APPLICATIONS AVAILABLE ON MARK 3000 SERVICE

APPLICATION AREA/PRODUCT NAME
• OPERATING ENVIRONMENT – IBM 3081, MVS, TSO, CICS
• PROGRAMMING LANGUAGES SUPPORTED – FORTRAN 77 – COBOL – PL/1 – BASIC
• DATA MANAGEMENT SOFTWARE – MARK IV – IMS – SYSTEM 2000 – LIBRARIAN – MIMS SYSTEM – FOCUS
• DATA BASES AVAILABLE – PETROLEUM DATA BASE
• FINANCIAL APPLICATIONS/TOOLS – GENERAL ACCOUNTING – FINANCIAL PLANNING (FCP-EPS) – FORECASTING (SIMPLAN) – BUDGETING AND MODELING (CPL/TACTIX)
• SCIENTIFIC AND ENGINEERING – MECHANICAL ENGINEERING AND DESIGN • NASTRAN • SUPERB • ANSYS – CIRCUIT ANALYSIS • ASTAP
• GRAPHICS – TELL-A-GRAF – SAS/GRAPH – SYMAP – CALFORM – ASPEX

APPLICATION AREA/PRODUCT NAME
• RESOURCE MANAGEMENT – MARK IV EEO – PROJECT MANAGEMENT • PC-70 • PROJECT/2
• ENERGY – APEC PROGRAMS – DRILLING ACTIVITY ANALYSIS – EXPLORATORY WELL FILE – EQUIPMENT SELECTION – TRACE (TRANE AIR CONDITIONING ECONOMICS)
• ORDER SERVICE – DISPATCH 3000
• MANUFACTURING – MIMS MFG – PLASTICS ENGINEERING
• DISTRIBUTION – VEHICLE ROUTING – VSPX (VEHICLE SCHEDULING)
• MATHEMATICS – MPS III – MPSX/370 – SPSS
• PLANNING AND MODELING – BMDP (PRODUCTION SCHEDULING) – CSMP III (SIMULATION) – DYNAMO III/F (SIMULATION) – GPSS V (SIMULATION) – KETNET – MAGEN (MATRIX GENERATOR)

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EXHIBIT C

APPLICATIONS AVAILABLE ON MARK III SERVICE

APPLICATION AREA/PRODUCT NAME
• OPERATING ENVIRONMENT – HONEYWELL DPS-8/70s, MARK III, GCOS
• PROGRAMMING LANGUAGES SUPPORTED – FORTRAN 77 – COBOL – PL/1 – BASIC
• DATA MANAGEMENT SOFTWARE – DMS III – HISAM – DM IV – SYSTEM 2000 – MARK IV – DCM – FLEXIMIS – SAS – REQUEST – SITE II – EPICS – MARDATA
• DATA BASES AVAILABLE – MAP (ECONOMETRIC DATA BASE) – CURRENCY DATA BASE SERVICE – SECURITIES DATA BASE SERVICE – VALUELINE – NEMA (NATIONAL ELECTRICAL MANUFACTURERS) – DEPARTMENT OF COMMERCE (SIC) – FEDERAL TRADE COMMISSION – CITIBASE – PETROLEUM INSTITUTE – DWIGHT'S ENERGYDATA – CORPORATE FINANCIAL DATA SERVICE – BUSINESS AND FINANCIAL DATA BANK – BI/DATA – COMMODITY FUTURES – AHAM (HOME APPLIANCE MANUFACTURING) – UCLA BUSINESS FORECASTING
• FINANCIAL APPLICATIONS/TOOLS – GENERAL BUSINESS ACCOUNTING – FINANCIAL ANALYSIS – FORECASTING – AUDITING
• BANKING/CASH MANAGEMENT
• CHEMICAL
• COMMUNICATIONS – TELEPHONE COMPANY OPERATIONS AND FINANCE
• CONSTRUCTION
• DISTRIBUTION MANAGEMENT
• ELECTRIC AND GAS UTILITIES – ENERGY MANAGEMENT – ENERGY BROKER – UTILITY MODELING
• ELECTRONIC MAIL
• ENGINEERING – CIVIL – MECHANICAL – ELECTRICAL AND ELECTRONIC
• HUMAN RESOURCE MANAGEMENT

APPLICATION AREA/PRODUCT NAME
• INSURANCE
• INVESTMENT RESOURCE MANAGEMENT
• INVENTORY CONTROL/ORDER SERVICE
• GRAPHICS AND PLOTTING
• LINEAR PROGRAMMING
• MANUFACTURING – INDUSTRIAL ENGINEERING – PLASTICS ENGINEERING – MANUFACTURING MANAGEMENT – NUMERICAL CONTROL – PRODUCTION SCHEDULING – QUALITY CONTROL
• MARKETING AND SALES
• MATHEMATICS
• MEDICAL AND HEALTH CARE
• MINING
• OPERATIONS RESEARCH AND MODELING
• PETROLEUM/ENERGY
• PROJECT PLANNING AND MANAGEMENT
• REAL ESTATE
• SIMULATION AND MODELING
• STATISTICAL ANALYSIS AND FORECASTING
• TRANSPORTATION – MARINE MANAGEMENT
• MISCELLANEOUS

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COMPANY PROFILE

IBM INFORMATION NETWORK
51 Weaver Street
Greenwich, CN 06830

Telephone: (203) 629-2023

General Manager: James M. Hewitt

Status: Division of IBM

Year Founded: February 1982

Fiscal Year End: December 31

PERFORMANCE

In the first year of operation, interactive processing and remote batch services generated approximately $28 million. Prior to January 1979 IBM had been constrained not to offer data services under an-agreement of a private anti-trust settlement with Control Data Corporation

BUSINESS MIX

In its first year, the business mix was primarily from banks, telephone companies, engineering and contract firms, aerospace companies and law firms. In 1983 this mix will be substantially altered by the addition of the Insurance Communications Service (linking 50,000 independent insurance agents and underwriters with insurance companies nationwide) and by the Network Service which will provide design, testing and management of client private communication networks.

GOALS & OBJECTIVES

The goal is to facilitate the sale and support the installation of IBM computer products, as well as provide classical timesharing, remote batch and data network services. The objective is to provide a competitive alternative to other suppliers who want to keep the clients, once captured, on their network. IBM/IN has no such ambition; rather their clients will be encouraged to upgrade to in-house solutions as soon as their processing volume permits. The private network offering aims at avoiding making IBM clients dependent on a third-party for data transfer between IBM equipment.

CURRENT STRATEGY

The strategy of the IBM/IN group is to provide all of those services and capabilities that are needed to capture new clients, hand hold them while they are awaiting delivery of their IBM computers, assist in the acceleration of the acceptance of those computers and help avoid letting IBM customers go outside for consulting, programming or network design skills (that might lead to a non-IBM solution for the clients application). In one year much has been accomplished. Look for more, similar tools and for the expansion of more truly information service offerings in the next five years.

There are no financial details available on IBM/IN but INPUT believes the group is currently losing money.

CAPABILITIES

The Network Service interfaces terminals with remote host processors, or one host with others, within the same corporation or outside of it. The key aspect of the system, however, is the professional guidance and assistance that is available in planning, designing, implementing and managing the network requirements of clients (which are likely to become very complex quickly over the next five years due to data/text/voice and graphics integration and the linking of LANs with remote networks).

The Data Bank is an on-line data bank that is a catalogue of all current IBM hardware, software, training and documentation products (and prices).

The Development Center is a test bed for the preparation of application systems and data bases for installation on IBM systems that have yet to be delivered. It essentially accelerates acceptance schedules and therefore accelerates revenue recognition.

The Information Center is the only true timesharing-like service but it is aimed at helping professional people, with no (or little) data processing experience, to use computers in their work. It is essentially a greenhouse for the development of seedling IBM clients.

A list of the products and applications available is shown in Exhibits A and B.

The company image is, of course, first class, but the product image is not established yet. It isn't clear yet what IBM intends the primary role of IBM/IN to be.

MANAGEMENT

The management structure of IBM/IN is not available, nor is the organizational chart.

ASSUMPTIONS OF FIRM

Other computer manufacturers either offer makeshift services (based on in-house demonstration machines) or compete with the in-house system (e.g., CDC Data Services). IBM/IN is intended to offer a professinal solution to the pre-installation prospect or client, and take care of his temporary remote computing needs and/or his network needs. IBM believes its approach is unique. It has a market potential of $500 million over the next three years. Competitors will be unable to compete because IBM will have control of the in-house system as well as the network, in addition to the traditional remote computing capabilities.

GENERAL CHARACTERISTICS

IBM/IN is sold in 11 cities (Atlanta, Boston, Chicago, Dallas, Houston, Los Angeles, New York, Philadelphia, San Francisco, Tampa, and Washington, D.C.). It is available seven days a week, 24 hours a day.

There is no plan for acquisitions. IBM will apparently grow all of its business organically (which will require substantial funding due to the huge potential).

The IBM/IN operations are currently one-tenth of one percent of IBM's total revenue. By 1987 it is expected to be half of one percent or approximately $400 million (a 70% compounded annual growth rate).

The uniqueness of IBM/IN is simply the IBM name which has an incredible marketing value. There are no unique skills or products.

IBM INFORMATION NETWORK

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MT. VIEW
APR 11 1983

IBM Information Network

The IBM Information Network began operations in February, 1982, with the introduction of a new computing network offering coast-to-coast data networking for remote information processing.

The IBM Information Network's remote computing offerings are designed to boost data processing productivity and make a variety of problem-solving applications available to end users. The network links users to an IBM computing center in Tampa, Florida, where advanced operating system programming and more than 100 productivity, development and application programs are available for use by data processing professionals as well as non-technical end users.

The remote computing resources enable data processing professionals to develop, test and maintain application programs. They also can be used to get a "head start" on installing or converting programs to run on new in-house computer systems.

The IBM Information Network also can assist end users with minimal data processing experience to access applications and quickly become familiar with their use. Finance officers or business planners, for example, can use the IBM Information Network for problem-solving or for diverse applications such as editing of reports and other documents, testing the effect of inventory levels on sales, or analyzing sales by individual stores in a chain. Users can create customized letters and reports or develop and display color charts and graphs.

Network Services

In September, 1982, the IBM Information Network added a new offering, the Network Services product, which enables customers to use the network to interconnect their own terminals and host processors. This makes it possible, for example, for a user in New York to access applications running on a computer system located in Dallas or Chicago. It would also enable the user to access the IBM Information Network's remote computing resources in Tampa.

This networking offering also provides IBM assistance in planning, installing and managing data communications lines and equipment, making it easier to establish and use networks.

Remote Computing Offerings

Remote computing resources available from the IBM Information Network's Tampa center are grouped into three general categories: Information Center, Development Center and Data Bank.

INFORMATION CENTER: Applications available in the "Information Center" give business, government or education professionals access to data processing tools to assist with problem solving, text editing, project management, financial planning and analysis. These resources are designed for use by professionals with little or no data processing experience.

For problem solving, users can, for example, enter information on interest rates, manipulate the data and ask "what if" questions to better understand the effect of variables on plans. With project management capabilities, users can track schedules, costs and progress. Text processing applications can help create, customize, edit, store and retrieve documents, letters and reports.

DEVELOPMENT CENTER: The computing resources available under the "Development Center" are designed primarily for use by data processing professionals who are developing, testing or maintaining programs or preparing software for installation on new in-house systems. The tools available to DP professionals include: Virtual Machine/System Product (VM/SP), Disk Operating System/Virtual Storage Extended (DOS/VSE) with Advanced Function, Multiple Virtual Storage/System Extension (MVS/SE), and Customer Information Control System, Virtual System (CICS/VS).

In addition, the Development Center makes a variety of compilers, programming languages, conversion aids and utility programs available to assist system and application programmers and other data processing professionals.

DATA BANK: The IBM Information Network Data Bank offers Information/System II which is also primarily used by data processing professionals. It is an online system that provides current information on many IBM hardware and software products, publications and education offerings.

The IBM Information Network is marketed in eleven cities: Atlanta, Boston, Chicago, Dallas, Houston, Los Angeles, New York, Philadelphia, San Francisco, Tampa and Washington, D.C. It is generally available 24 hours a day, seven days a week. A toll-free Customer Assistance facility operates six days a week to provide operational assistance.

APR 11 1985

Network Services

Networking: The Data Communications Dilemma

A data communications network is something many businesses can't afford to do without, yet can't afford to do themselves.

A well-planned and implemented data communications network increases operational productivity and efficiency . . . and extends computer power to virtually any location that has a communicating terminal. Designing, implementing, and operating a data communications network is a complex, time-consuming process; the task can stretch available DP resources to the limit and impact ongoing operations.

Network Services: The IBM Information Network Solution

Network Services, a unique product of the IBM Information Network, can reduce the cost, complexity, and time required to implement a data communications network. It can provide faster start-up at lower cost than internal development and implementation, while offering a proven, low-risk entry into data communications networking.

Network Services is designed to simplify the complexities customers face in the installation, operation, and management of data communications networks. **Network Services** provides customers all the services and facilities needed to effectively implement a data network. These fall into three main areas:

1. Installation Support
2. Operational and Management Support
3. Enhanced Network Support Functions

Trained IBM Information Network Systems Engineers work closely with **Network Services** customers to identify and analyze organizational information requirements, and to design effective data communications network solutions. IBM handles the installation coordination, education and implementation planning required for start-up and maintenance.

At the customer's option, the IBM Information Network will manage access lines and modems — allowing "end-to-end" responsibility for network operations in the hands of a single vendor.

IBM's established procedures, documentation, controls and user aids simplify data network management and use. **Network Services** provides network capacity planning, controls physical network resources, and monitors performance and availability.

Once the customer's network is attached to the IBM Information Network, **Network Services** tracks problems, network changes and network inventory, and provides management reports. Customer organizations also benefit from easier maintenance of host systems, flexibility to enhance applications, and the ability to expand the user community through the use of standard software in their host computer.

In addition, customer networks are protected by security facilities, and have continuous access to advanced problem determination and resolution techniques developed by the IBM Information Network.

Customer organizations can also access the IBM Information Network's main computer center in Tampa, Florida. On a "pay-for-what-you-use" basis, customers can access more than 120 IBM productivity program products to evaluate usefulness and cost-justify applications for possible transfer in-house.

How Network Services Work For You

Installation Support

Network Services provides the evaluation, analysis, design, installation planning, coordination, testing, education and training required to install a data communications network that meets customer needs. **Installation Support** consists of the following key phases:

Implementation Planning — IBM Information Network Systems Engineers work closely with customers in planning any host-site changes and remote-site requirements. In cooperation with customer's normally assigned IBM Systems Engineer, IBM Information Network representatives assist in preparing a detailed implementation plan (including necessary software upgrades and migration, host-site hardware upgrades, physical planning and site preparation plans for terminal locations). The plan also encompasses education and training so users can get started quickly.

Installation Coordination — IBM Information Network systems engineers coordinate the overall installation effort to provide compatibility between scheduled dates for equipment and line installation. Working with a Service Administrator designated by the customer, site preparation at terminal and host locations is closely coordinated to facilitate smooth installation.

Installation and Testing — Customer host processors are attached to the IBM Information Network with either a Systems Network Architecture (SNA) or IBM Information Network Binary Synchronous Communications (BSC) emulation interface. IBM 3270 terminals Synchronous Data Link Control (SDLC) or BSC are supported for interactive communications with either host interface type. **Network Services** requires only standard IBM software in host computers.

IBM Information Network verifies installation of communications facilities (lines and modems) through basic link tests. Installation of access lines, modems and terminals at customer sites is the customer's responsibility, but **Network Services** provides detailed installation plans. Installation is certified complete when terminal users can access applications in customer host computers.

Extended Network Attachment — If a customer chooses this option, IBM Information Network not only coordinates installation of access lines and modems, but will order and manage them as well.

Education and Training — Education for the customer's Service Administrator is available from the IBM Information Network Education Center in Tampa. Service Administrators gain hands-on training in use of administrative functions of the IBM Information Network. Also provided are sample materials for training remote-site personnel. IBM Information Network Systems Engineers can assist in customizing sample materials to meet each customer's individual network requirements.

Operational and Management Support

Once certified, IBM Information Network assumes responsibility for network operations and management, freeing customer DP personnel to meet central site and end-user requirements. Operational and Management Support provides these services:

Network Operation — IBM Information Network operates the network with availability and performance in mind. Customers are responsible only for operating host-site hardware/software and remote-site terminals/control units.

End-to-End Facilities — Using the **Extended Network Attachment** option, IBM Information Network provides end-to-end communications facilities management. Customers simply attach terminals and hosts to IBM Information Network-provided modems.

Change Control — A range of support services is provided to assist customers with network-related change management. Services include: recommendations on impact of IBM-distributed changes to Virtual Telecommunications Access Method (VTAM), Virtual Telecommunications Access Method Extended (VTAME), and Network Control Program (NCP) software; assistance in submitting change requests to IBM Information Network, technical assessment of changes submitted by customers; re-certifying new configurations when required; and tracking changes.

Problem Management — From the moment a problem is reported (either on-line or by phone to the IBM Information Network Customer Assistance facility), **Network Services** manages it until resolved. On-line access to problem-management information and report distribution is available through the IBM Information Network Customer Support System (CSS).

Problem Determination — Problem determination is a high priority function of **Network Services.** For all users, the initial point of contact is IBM Information Network. Specially trained operations personnel perform initial problem determination; if a problem is not resolved, it's assigned to second-level support functions. If a problem is determined to originate with the customer, it's referred to the Service Administrator. IBM Information Network will provide reasonable assistance on customer-designated problems referred to the Service Administrator.

Service Administrator Support — Customers have access to additional enhanced support functions to help Service Administrators make the best possible use of their data communications networks. These include:

- **Password Maintenance** — This offers Service Administrators the option of handling password maintenance on behalf of users within the same account.
- **Application Access Control** — Service Administrators control access to applications in their host computers, by user-ID or account-ID.
- **Customer Assistance** — Service Administrators may call Customer Assistance at any time with questions related to problem management, change control, or equipment inventory. If an answer is not readily available, an IBM Information Network Operations Representative will provide additional assistance.
- **IBM Information Network Customer Support System (CSS)** — Using Customer Support System (CSS) Service Administrators have the ability to request certain reports for routing to their own terminal printer and to obtain status on problems within their account. CSS also offers access to problem management functions (such as capability to answer and close problems assigned the customer for resolution).
- **Message Broadcast Facility** — This function permits Service Administrators to send messages to one or more users.
- **On-Line News Facility** — Service Administrators also have access to the News facility and permanent storage to notify users of new functions on their host computer, or to provide other information valuable to users.
- **Status Facility** — This facility allows Service Administrators to display current status of terminals or users on command.

Management Reports — The management of any data network hinges on accurate, timely reports. Three management reports are available:

- **Problem Summary** — A weekly problem summary delivered on-line to the Service Administrator's printer.
- **Problem Detail** — A problem detail report, delivered on-line to the Service Administrator's printer, is available upon request.
- **Equipment Inventory** — Whenever changes occur, a list of the customer's network-attached terminal and control equipment is delivered on-line.

IBM Information Network Enhanced Network Support

An extensive range of IBM Information Network products and services is available to **Network Services** customers. These functions aid users, simplify access to the network, and assure data security and control.

User-Friendly Interfaces — Using the network is simplified through user-friendly interfaces. Entering only a user-ID and password, users are prompted with a product selection screen which has a "menu" of all applications they're authorized to access. If confused, users can request additional information or assistance via the HELP facility.

Security — Security and authorization is performed by **Network Services** software. Network access is controlled by user-IDs and passwords. User-IDs must be valid for the specified account ID and the user's profile is checked for authorized applications. Access to applications not in the user's profile is restricted.

Password Maintenance — Users can maintain their own passwords or allow their Service Administrator to maintain them. Passwords are stored in user profiles accessible at any time. This permits users their own schedules for changing passwords within the context of IBM Information Network security procedures.

Hosts

Host computers attached to IBM Information Network for **Network Services** must use Advanced Communication Function (ACF) VTAM, ACF/VTAME, or Basic Telecommunications Access Method (BTAM), and either Information Management System Virtual System (IMS/VS) or Customer Information Control System Virtual System (CICS/VS) sub-systems. Other requirements may be handled on a Request Price Quotation (RPQ) basis.

Host Attachment Via SNA/MSNF Interface

The following levels are supported: (ACF)/VTAM with MSNF at Version 1/Release 3 or MVS; ACF/VTAM with MSNF at Version 1/Release 2 or Version 1/Release 3 on DOS/VSE; ACF/VTAME; ACF NCP Version 1/Release 2 or Version 1/Release 3.

Line Speeds

Terminal or control units attached to the IBM Information Network network via analog lines, are supported at these speeds: for analog lines: 2400, 4800, or 9600 BPS. Both point-to-point and multi-point lines are supported, but multi-point lines are only available with the Extended Network Attachment or on a Request for Price Quotation (RPQ) basis.

Host attachments are supported at 4800 BPS or 9600 BPS on point-to-point lines only.

Let Us Tell You More

If you would like to attend a demonstration or seminar on **Network Services** or would like to have a marketing representative contact you, write:

IBM Information Network
P.O. Box 30104
Tampa, FL 33630-3104

Or, call IBM toll-free: 800-631-5582.

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Resources for personal computing

Product Description

APPLICATION SYSTEM (AS)

Personal computing for professionals

Application System (AS) is an IBM Information Network product which allows business professionals to manipulate and examine data in a straightforward yet extremely flexible manner. It provides comprehensive remote computing capabilities to managers, administrators, clerks, and staff professionals in business, industry and government. AS makes information directly accessible to the person who needs it, both quickly and easily.

AS provides the user with a complete set of application-oriented, data processing capabilities. Facilities include:

- **data management including entry, update and verification**
- **information retrieval and simple analysis**
- **formal reporting**
- **business communications**
- **project control**
- **special statistical and forecasting analysis**
- **business planning and modeling**
- **business graphics**

AS provides a simple concept of data, a consistent and simple language for directly describing and manipulating data, a means for managing files efficiently, a procedural language for repetitive tasks, and protection against unauthorized access of data.

The operation of AS is controlled by a wide range of simple commands. Although easy to understand, they are extremely powerful and can be combined in a variety of ways so that a wide range of applications may be built using AS. While working in AS, users may review definitions of stored data, view selected data or intermediate results, specify presentation in tabular or graphical format, obtain assistance to understand messages from the system, and determine the status of their work in progress.

AS has already proven to be a popular Information Center product in Europe and Japan where it has been available for several years through IBM Data Center Services.

Application System, accessed from terminals located at the user's premises, resides in the IBM Information Network computer complex in Tampa, Florida. Connection between the terminals and the host computers is made using either switched or leased lines to a network access point in one of ten major cities.

Highlights

- **File definition facilities of AS include the ability to define record types and sequences, field names and types, size and precision specifications, and other access capabilities.**
- **The data creation capability allows the user to specify during data input skip fields, repeat values, and extended values based on linear or percent trends as well as to list, find, move, change, copy, replace and delete records and fields. Optionally extended validation of input data against field definitions and limits is permitted.**
- **A standard screen format provides for easy viewing, amending and entering data. Users have the facilities to design panels for themselves by mapping out screens with text and data area location specified, as well as data characteristics, including color and display protection.**
- **File control facilities of AS allow the user to specify input and output files or accept defaults such that the last output file is used for next input, and optionally to keep or delete files when finished processing. Access to multiple, concurrent files in series or in parallel is possible. Processing of related files can be specified based on match criteria for user selected key fields.**
- **Data control includes the flexibility to select records and fields based on arithmetic or logical operations and comparisons to reduce the working input file and to resequence if necessary.**
- **Users have the option of creating simple reports that use standard formats or of specifying complex report formats. Specified reports may have various levels of calculated data, statistical evaluations and modeling formats, comments or headings, totals by row or columns on specific control breaks, detailed or summary information, or graphical formats. Simple viewing of selected data from a file in an unformatted presentation is also possible.**
- **Modeling functions of AS provide the ability to specify relationships between the items in a plan, define various known or projected values for items, and to manipulate required values to investigate "what-if" situations. AS calculates values for all items in the plan based on their interrelationships and/or initial values. The business plan may be spread over various time periods —months, quarters, years — with subtotals at any desired frequency. A variety of reports can be generated from a raw financial output file by means of differing selection criteria or report specifications. Standard reports are available for various time period plans. These may be used directly or altered as desired.**
- **Statistical functions built into AS include:**
  - **elementary statistics such as mean, standard deviation, error and range.**
  - **simple, partial, and cross correlations**
  - **regression analysis**
  - **linear, multiple, polynomial, stepwise and two stage least square**
  - **linear trends and curve fitting**
  - **time series forecasting techniques such as adaptive filtering, Box-Jenkins, Shiskin X-11, and others**
  - **parametric and nonparametric tests including F test, Chi square, Cochran Q test, and Kendall Coefficient of Concordance.**

- general analysis procedures such as analysis of variance, canonical correlation, and cluster, discriminant and factor analysis

- Standard plot, graphs, and histograms provide a pictorial view of data. Procedures also exist for specifying histograms and line plots with complete user control over scales, titles and labels, as well as color and plotting characteristics. Automatic generation of points can produce connecting lines.
- AS project tracking facilities can process both arrow and precedence networks. After jobs are identified with start and finish dates, duration, relationships and time delays, progress can be reported on in four different ways. Standard barchart specifications can graphically depict dependencies and a variety of standard formats can produce calendar reports.
- The creation of formatted documents is aided by a simple yet highly flexible text processor. Features include line length adjustment, justification, multi-column output, automatic table-of-contents, control over spacing, indentation, paging, title specification at page top or bottom, and section headings. Data that has been included from other facilities, such as a summary report or a graph, may even be highlighted with color.
- A meeting command provides the ability to use a terminal in place of a blackboard or projection screen for visual contact during a meeting. All the presenter's output, and as an option the input commands also, is duplicated on the screens of selected observers who are also logged onto the AS system.
- File sharing and data security in AS is provided by the library structure. Project libraries allow users within a contract to share data, while private libraries provide a repository for data belonging exclusively to one userid. An individual data set in the project library can be further protected by password. Only the data set owner can delete a file from any library.
- Printing of data files and screen images is accomplished with two simple commands.
- Online information screens supply descriptive information on using the system and show examples of common functions. Online user assistance also includes error explanation, query of status and files, conversational forms of REPORT, STATISTICS and NETWORK, predefined data screen panels and financial report formats, menu screens to assist in getting files into and out of AS; and INFO and NEWS for distributing information to users.
- A system log maintains a record of each user's activity and, if the system terminates abnormally, provides for recovery of the last session's activity and data.

Restrictions: The AS LP command and linear programming processor are not available to users of AS on the IBM Information Network.

Service hours: AS is available via the IBM Information Network from 6:00 am to midnight Eastern time, seven days per week, except for scheduled maintenance.

Customer assistance: AS technical assistance will be available from Customer Assistance personnel on Monday-Friday, 8:00 am to 8:00 pm Eastern Time, and on Saturday, 8:00 am to 5:00 pm Eastern Time.

An online facility can be used to report problems or request help, or users can call the toll-free telephone number provided for Customer Assistance. The online facility allows users to enter problems or questions directly to Customer Assistance. There is no charge for the use of the online facility.

Availability of inhouse option: In addition to offering Application System as a remote computing service, IBM intends to license a version of the Application System for internal use in customers' own systems. This new offering will be designed to run on an IBM 4300 processor under VM/SP Release 2. Planned availability is prior to the end of 1983. New terms and conditions provide for an initial charge and monthly charges related to the number of concurrent end users.

Charges: See the separately available IBM Information Network schedule of charges.

Education: The IBM Information Network education center personnel will be conducting AS usage classes based on sufficient demand and at locations best suited to the needs of IBM Information Network customers.

These classes consist of:

- **AS Concepts and Facilities** ½ day
- **AS for New Users** 2 and ½ da
- **AS Getting Started Workshop** up to six half days

A description of these classes and a location schedule is available.

The IBM Information Network Market Support Center is also prepared to offer large account briefings and planning sessions and customer executive briefings and fly-ins as requested.

Let us tell you more

If you would like to attend a demonstration or seminar on the **IBM Application System** or would like to have a marketing representative contact you, write:

IBM Information Network
P.O. Box 30104
Tampa, FL 33630-3104

Or, call IBM toll-free: 800-631-5582.

IBM INFORMATION NETWORK

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APR 11 1983

Resources for personal computing

PRPQ PO9033

IBM PROFESSIONAL OFFICE SYSTEM (PROFS)

The productivity vehicle for managers, professionals and administrative support staffs

Spurred by the increasing complexity of doing business, the annual outlay for direct office expense is mounting at an alarming rate. And professional office staffs account for 75 percent of that figure.

Given the methods of business as usual, there seems to be no end to this costly spiral. But consideration of the computing potential you already have in place can lead to an exciting breakthrough in the search for ways to increase professional productivity.

Revolutionize the working day

What would it mean to the professional to effectively reorder the creative, communicative and scheduling aspects of the entire working day? What would it mean to:

- **Get detailed information from others in minutes, even over vast distances?**

  Send electronic messages in return?
- **Have ready access to the latest information available?**
- **Manage time efficiently through automatic calendar, reminder or "tickler" files?**

All this and more is available with the IBM Professional Office System (PROFS), a Licensed Program, that, in customer and IBM locations alike, has proven its productivity potential in four vital areas:

- **Reducing elapsed time to complete tasks**
- **Increasing the quantity of work produced**
- **Improving the quality of completed work**
- **Speeding business communications**

Easy steps to PROFS productivity

To appreciate the extent to which PROFS can compress time and task completion, consider the impact the system would have on a professional's working day.

From a display terminal, the principal or secretary can:

- **Send and receive electronic mail**
- **Search for and retrieve documents**
- **Update and check calendars**
- **Schedule meetings and physical facilities**
- **Enter, edit, proofread and file documents**

Thus, this "one person, one terminal" arrangement permits the professional to create, communicate and distribute — all by pressing a few keys. And all these can be performed largely free of paper clutter, repetition of information-handling steps, and dependence on the hit-or-miss of regular telephone calls and delays of conventional mail deliveries.

To better understand how easy it is to use PROFS, let's look at the sequence of events involved in a typical PROFS operation.

The sign-on

From an IBM display terminal attached to PROFS, the user gets into the system by supplying a personal identifier and password known only to the user and the system administrator. Passwords are not displayed when they are entered, and they can be easily changed periodically. Once cleared, the user can access PROFS, communicate with other PROFS users or distribute information in many forms to any number of terminals near or far.

The main menu

PROFS displays menus to guide users through its functions. The main menu lists the primary functions and keys designated to invoke each of them. The system also allows for customizing two additional main menus to provide only the functions you want, in the order that you want them. The user can even add other business applications to the list.

The lower part of each main menu screen is reserved for messages. For example, the user might want to preset reminders for meetings. The reminders can be displayed on the desired date and even accompanied by an audible tone. Or you might include a schedule of follow-up messages to assure that actions requested are actually put into effect.

And any time more information is needed to explain a specific function, a "help" facility can be called up to clarify procedures.

The calendar

Maintaining personal calendars, setting up meetings, and scheduling conference rooms and equipment are time-consuming office activities. These tasks are simplified when you use PROFS.

Appointments can be displayed chronologically for a single day or summarized for an entire month. As entries are added or cancelled, the system automatically resequences the order.

You may selectively permit others to review or alter your calendar. And you can limit access to specific appointments that you designate as "confidential."

You can also use the calendar function to schedule the use of conference rooms and other physical facilities.

The electronic in-basket

After checking your calendar, you would probably want to "open" your incoming electronic mail. Like a hidden in-basket, PROFS holds mail and other documents until you read, file, forward or discard them. Incoming mail is listed in the order of its arrival by author, addressee and subject. If you prefer, you can have a document printed out or forwarded to others, with an electronic routing slip attached, for information, follow-through or other action.

Your electronic note, incidentally, is a sure way to avoid "telephone roulette," and your personal message goes directly to the addressee's terminal, exactly as you worded it. Any reply can also be by electronic note. For future reference, notes can be retained in a permanent log.

The file search

To find a document in PROFS, the user can initiate a document search in a number of ways: by date, author, addressee, subject, comments, keywords, due date, status, or action required. The search can be as broad as requesting all documents by a given author in the past 90 days, or as specific as uncovering a single document, author unknown, by using one or more keywords. Even documents kept in file drawers and other locations can be indexed by PROFS.

Naturally, relevant documents that are found can be read, reviewed, printed or forwarded to another PROFS user. The point is that PROFS provides you, the professional, with fast, ready access to any documents you have sent, received or otherwise filed in PROFS for more timely, accurate communications — and, potentially, better decisions.

The preparation of memos

Once a principal or secretary specifies the type of memo to be generated, the system automatically prompts the user to insert heading information, such as author, subject and date. This information also serves to create an index record for PROFS filing. Prestored author profiles and formats provide standard information to reduce keying time.

Once the text is keyed, the document can be viewed in final form or revised as necessary. Drafts can be forwarded to others for their review or changes.

Of course, at any time during the creation process, the document can be proofread by PROFS.

Proofreading

Proofreading the finished document is simplified, too, because PROFS provides a spelling checker based on a 134,000-word English dictionary, plus medical and legal dictionaries. And users can add an unlimited number of their own words as well.

Electronic distribution

Once your finished document is ready for distribution, it may be sent to one addressee — or hundreds.

If people are on the same PROFS system, when the document or memo reaches its destination, a receipt notice goes back to the sender. The document, meanwhile, is placed in the electronic in-basket of the recipient where it remains until the mail is opened. The recipient can read the document or memo and file it, forward it, print it out, hold it for follow-up or simply discard it.

Once document preparation and distribution are completed, you can return to the main menu to display reminders and messages throughout the day, or to use other PROFS functions.

Electronic distribution and receipt speed communications to shorten decision times and improve productivity.

Getting started

The IBM Professional Office System is an exciting, innovative way to help improve the productivity and effectiveness of managers, professionals and administrative support people. This is particularly true in organizations with multiple locations that have a computing capability to support them.

It is also a far-reaching system that can improve the way things "have always been done." That's why it's important to initiate PROFS in a single key area, followed by gradual extension to other departments or divisions as your experience with the system and confidence in it grow.

This phased implementation, for example, will give you the opportunity to adapt PROFS to your operating style, to make unique system extensions you desire, and to make crucial cost-versus-benefit assessments.

And PROFS comes with extensive publications which outline simple step-by-step procedures for all users. These publications are designed to help managers, professionals, secretaries and other administrative support personnel start improving their productivity and effectiveness as soon as the system is installed.

Let us tell you more

If you would like to attend a demonstration or seminar on the **IBM Professional Office System** or would like to have a marketing representative contact you, write:

IBM Information Network
P.O. Box 30104
Tampa, FL 33630-3104

Or, call IBM toll-free: 800-631-5582.

Development Center

Product Description

Productivity For The DP Professional

Achieving increased productivity is recognized as a major challenge facing the data processing industry in the 1980's. The IBM Information Network Development Center offers an effective, comprehensive approach toward enhancing the productivity of DP professionals involved in the program development process.

Development aids incorporated by the IBM Information Network allow programmers using visual displays on their own premises to perform on-line editing, compilation and testing.

Development Center capabilities are offered on both the Conversational Monitor System (VM/CMS) and the Timesharing Option (MVS/TSO), permitting DP users to select the environment with which they are most familiar. These systems are called the VM Productivity System (VMPS) and MVS Productivity System (MVSPS) respectively. They provide powerful yet flexible program development methods, as well as a host of aids for converting programs.

IBM Information Network facilities have been implemented to support the interactive environment such that dialogs permit users to easily select programs. IBM Information Network offerings are based on generally available IBM programs, providing users the additional flexibility to run programs on in-house IBM systems.

Development Center facilities are accessible through full-screen display terminals, remote job entry stations and printers over switched or leased public telephone lines to IBM Information Network nodes in several major U.S. cities.

Development Center users receive field support from trained IBM marketing representatives and systems engineers. Users also have toll-free access to IBM Information Network's Customer Assistance facilities for prompt answers to most usage questions.

Additionally, VMPS provides the Interactive Instructional Presentation System (IIPS) for computer-based training in several areas, including: TSO, CMS, Data Language/1 (DL/1), 3270 Operator Training, Document Composition Facility (DCF), Information Management System (IMS), and others.

CICS Program Development

IBM/Information Network CICS Program Development facilities incorporate a series of menus which assist in the selection of functions necessary for the development and testing of CICS/DOS/VS transactions. A series of user panels presents lists of options for selection of routes through the development cycle, and eliminates the requirement for programmers to code control language in accomplishing standard program development tasks. CICS Program Development is a highly productive system that allows users to develop and test CICS programs interactively from a single terminal, thus reducing the impact of testing on in-house IBM systems.

Pre-written functions within the CICS development system are available to assist in the development of:

- **CICS/VS and DL/1 on-line tables;**
- **CICS/VS Maps,** either through Basic Mapping Support (BMS) or the use of Screen Definition Facility (SDF) for on-line map creation;
- **CICS/VS Programs,** using either Command or Macro level interface.

Programming functions such as compilation can be performed either interactively or via the VMPS DOS background machine. There are facilities to assist in the retrieval of output when the DOS background machine is used.

CICS Program Development Testing Facilities

IBM Information Network provides support facilities for use in creation of VSAM datasets for testing. The CICS Program Development transaction testing capability provides each user with a self contained CICS/VS environment. This important feature enables users to test transactions without dependence upon system programmer availability for updating tables, or operating constraints which could displace testing to off-shift or weekend periods.

The testing of transactions is initiated through a VMPS terminal communicating with CICS/VS. A number of standard CICS/VS aids are available to users, including Execution Diagnostic Facility (EDF) and formatted CICS/VS transaction dumps.

Transactions developed under CMS may use VSAM data bases accessed either directly or through DL/1.

CICS Program Development User Benefit Summary

IBM Information Network's CICS Program Development facilities produce a number of benefits. While individual user experiences will vary according to specific operating environments, major benefits which user organizations may derive from IBM Information Network CICS Program Development features include:

Productivity Products The CICS Program Development user has access to a number of products which have been proven to enhance programmer productivity. These include interactive editors, the Screen Definition Facility (SDF CICS), for interactive screen design, and Development Management System (DMS). Access to these products can be advantageous for users converting to CICS, since application programmers need not wait until the proper support products are installed on new IBM hardware to become productive.

Menus and Dialogs Because CICS Program Development menus and dialogs provide a simplified interface between users and the VM environment, users can become productive with less than optimum skills. The resulting acceleration of application development can be especially valuable to new IBM

customers. While programmers new to the DOS/VSE environment face an educational requirement, the new CICS programmer need not know all the complexities of DOS when using CPD facilities to produce CICS applications.

Enhanced System Responsiveness CICS Program Development facilities contribute significantly to programmer productivity by minimizing delays associated with interactive editor response times and generation of output from compilations or test executions. CICS Program Development users may request that compilations and similar activities execute interactively, thereby obtaining immediate results. Such activities may alternately be routed to a background process while the programmer proceeds with related tasks until the execution completes.

Isolated Test Environment CICS Program Development's isolated test environment contributes to improved programmer productivity and eliminates any possibility that test transactions may cause an entire CICS system to abort. Additionally, CICS Program Development users are freed from dependence on system programmer availability to update new application entries in CICS tables. The CICS Program Development testing facility permits individual CICS Program Development users to maintain and update tables as necessary.

CONVERTING TO IBM?

The Development Center Can Help

The IBM Information Network Development Center is designed to speed and simplify the conversion from non-IBM to IBM operating systems, and from one IBM system to another.

Development Center facilities assist the systems analyst and programmer in familiarizing themselves with IBM systems and programs in advance of in-house installation, and can provide an environment for developing new applications. The Development Center also permits program managers to assess IBM program development tools before final selection of those which may be used for future in-house development.

Further, Development Center capabilities can help DP management ensure that new IBM systems are fully operational on schedule, permitting DP staff and department users to realize operating benefits as early as possible. Development Center facilities may also help avoid problems sometimes encountered when developing new applications while simultaneously generating a new in-house operating system.

Customers using the Development Center for conversion projects are advised to plan and monitor the overall conversion process with IBM's Project Evaluation and Control System (PEACS) or Project Analysis and Control System (PROJACS). Program documentation may be standardized and simplified using the Document Composition Facility (DCF), which enables programs to be documented via the same terminal used to develop them.

Conversion customers may use terminals on their own premises, connected to the IBM Information Network via leased or switched telephone lines to conveniently access IBM software. Once connected, users have immediate access to a sophisticated set of development and conversion aids, compilers, and utilities.

Base software includes:

- **DOS Virtual System Extended (DOS/VSE)**
- **System Productivity Facility (SPF)**
- **Customer Information Control System (CICS/DOS/VS)**
- **Data Language I DOS/VOS (DL/1)**
- **MVS System Product (MVS/SP)**
- **Information Management System (IMS.VS)**
- **COBOL, PL/1, FORTRAN, Assembler, RPG II, VS BASIC, VS APL and Pascal/VS**

IBM's base software makes it possible for users to accomplish tasks of program and Job Control conversion and program test. Split-screen editing makes it possible to simultaneously scan compilation errors and correct the source file. Data files can be defined, loaded, printed, and verified using VSAM utilities.

Specific conversion software is available for:

- **FORTRAN**
- **DOS to OS Assembler, COBOL and PL/1**
- **IBM System/3 DOS/VS RPG II**
- **IBM COBOL from Honeywell 200 Series**
- **IBM COBOL from Burroughs 2500 Series**
- **IBM COBOL from NCR Century**
- **IBM COBOL from GE-415**
- **IBM COBOL from RCA COBOL**

Information For Action

If you would like to attend a demonstration or seminar on the IBM Information Network's CPD or Conversion resources, write:

IBM Information Network
P.O. Box 30104
Tampa, FL 33630 - 3104

Or, call IBM toll-free: 800-631-5582

APR 11 1985

The Information Center

The Information Center is designed to give professional people the extended decision support tools they need to be more productive in their day-to-day business functions. The system is based on a collection of more than 50 IBM user-friendly software packages that allow users to make analyses and solve problems in their fields of interest. These generally available IBM programs provide facilities for:

- **query and analysis**
- **financial planning**
- **report formatting**
- **simple graphics**
- **statistics**
- **project management**
- **text processing**
- **problem solving languages**

With these products, end users frequently can formulate the solutions to their business problems directly, without needing to rely upon their in-house data processing department.

The mission of an Information Center is to provide users with services not normally offered by traditional application development. This includes tools, techniques, and support that will allow users to access their data on their terms to satisfy demand-processing needs. The primary objectives are to build user self-sufficiency in the use of computer resources, to increase user productivity, and to improve the decision-making process by making relevant data more readily available.

In setting up an Information Center, IBM has provided:

- **easy-to-use software tools**
- **education and consulting in the use of these tools**
- **help in obtaining access to data**
- **administration support**

Now the user needs only to provide:

- **knowledge and understanding of the job to be done**
- **justification for the accomplishment of the task**
- **resources for the development and maintenance of the application**

The following functional areas are supported by the IBM Information Network.

Query and Simple Analysis

An MIT School of Business Management study defined an inquiry system as one that "provides a data base with flexible inquiry capability, enabling managers to design and change their own monitoring and exception reports." When data can be quickly accessed in a form relevant to the user's requirements, it becomes information that can be used in making decisions. The ability to select from the data, count, summarize, average, tabulate, and review selected simple statistics is all-important in making the data useful. The IBM Information network uses the APL Data Interface program and A Departmental Reporting System to provide these facilities.

Formatting of Data

Data presentation is a widespread need ranging from simple lists to formatting highly structured documents. Users need a simple and responsive vehicle for assembling and organizing the data and quickly producing results. The IBM Information Network offers A Departmental Reporting System to provide these facilities.

Simple Graphics

It has been said that "One picture is worth a thousand words." Effective decision-making requires the ability to see through the mass of numbers to appreciate any patterns. Graphs can often highlight various aspects of tabular information — for example, trends of discrepancies — which may not be immediately apparent from the numbers themselves. A Departmental Reporting System offers simple graphics capabilities, including histograms and point plots.

Project Management

Project management and scheduling provide the means to plan and control a variety of products or activities, permitting tasks to be scheduled, resources assigned, costs allocated, interdependencies described, and progress reported. The benefit of a computer system is that it can help reduce the time a manager needs to spend in the clerical activity of checking the progress and dependencies. For project management, IBM Information Network offers the Project Evaluation and Control System, and the Project Analysis and Control System.

Financial Planning

The successful running of a business requires an understanding of the fundamental relationships between various elements. Managing these interrelationships often requires a modeling structure which describes them and allows the user to change assumptions and do "what if" calculations. Strategic decisions often commit an organization for many years, so it is important to make a careful study of a range of possible actions before selecting a strategy. To assist users in this area, IBM Information Network offers the Financial Planning System.

Text Processing

The control and maintenance of text is a common organizational requirement, whether that text includes formal documents, letters, reports, manuals, or simple memos. The Document Composition Facility offers a vehicle for document formatting with features such as spacing, paragraphing, footnoting, spelling verification, and automatic table of contents. For storing and retrieving of finished documents, which in itself can be quite time-consuming, the IBM Information Network offers the Storage and Information Retrieval System.

Detailed Problem Solving

When packages do not meet the needs, a user might learn APL, a powerful and concise problem-oriented language, to modify existing programs or to write new applications. APL provides a wide range of analytical and problem-solving capabilities. For the growing number of business professionals with some programming training, the IBM Information Network offers a variety of other programming tools to allow the creation of specifically tailored applications. These include VS BASIC, Pascal/VS, and FORTRAN versions G1, H Extended, Code-and-Go, and VS FORTRAN, as well as FORTRAN Interactive Debug.

Surrounding many of the products described above IBM has added menus that allow users to easily select a program, and HELP panels describing how to use the dialogs. Many of the packages also contain HELP information to assist the user in learning how to use them.

The packages are installed and run under the IBM Virtual Machine with its Conversational Monitor System (CMS). This gives users the flexibility of also running the packages in an in-house IBM data processing facility.

These products and facilities are accessible through full-screen display terminals such as the IBM 3270, keyboard/printers such as the IBM 3767, and remote printers such as the IBM 3286 over switched or leased telephone lines to IBM network nodes in several US cities or directly to the IBM Information Network computer complex in Tampa, Florida.

IBM professional support is available with the IBM Information Network. The IBM Information Center Specialist in the branch office is familiar with most of these products, and IBM Information Network has trained its own staff of marketing representatives and systems engineers on the products. Toll-free telephone access to Customer Assistance is provided to answer most questions a user may have while using the Information Center facilities.

Let Us Tell You More:

If you would like to attend a demonstration or seminar on Information Center resources, or would like to have a marketing representative contact you, write:

IBM Information Network
P.O. Box 30104
Tampa, FL 33630-3104

Or, call IBM toll-free: 800-631-5582.

IBM INFORMATION NETWORK

DATA BANK FOR DP PROFESSIONALS

Current Information When You Need It

Having the right information when it is needed improves productivity. Our customer surveys and pilot tests show that significant amounts of valuable time and money are spent by data processing staffs, in acquiring, storing and retrieving the technical information they require to plan, manage and operate a computer installation. Users in our pilot tests found that the online data bank gave them the information they needed days sooner. Even if you think you have all the necessary documents in-house, you can't be sure that what you have is current. And searching for the right information in those documents often takes hours of frustrating searches.

This unique service offering provides access to both Information/System II and Information/Library with its Library/MVS data base. Both are easy to use. Each was designed specifically for the kind of documents provided in their respective data base.

The Data Bank is designed to increase the productivity of system and application programmers, systems analysts, data base administrators, operators and librarians working with OS/VS2 (MVS) documentation.

Increased productivity is realized through:

- **Easy information retrieval**
- **Greatly reduced search time**

  Reduction of false starts and program runs due to missing information
- **Better performance of OS/VS2 associated tasks**
- **More frequent and more efficient usage of the OS/VS2 (MVS) documentation.**

Ease of use is enhanced through online orientation for the first time or casual user through tutorial and "Help" facilities.

Product Description

The IBM Information Network offers the same data base provided with the Information/System and Information/Library program products, but with several significant pluses:

- **The Data Bank is updated and managed by IBM**
- **Current information is available at your terminal when you need it**
- **You can use it for as little as $200/month which provides approximately 20 searches, depending on user needs**

A Wealth of Information for Action

Information/Library II provides MVS System Reference Library (SRL) information that reflects the structure of the publications. It consists of titles, tables of contents, indexes, and abstracts and a growing number of documents in full text.

The following publications are included in full text:

- **IBM Vocabulary for Data Processing, Telecommunications and Office Systems**
- **OS/VS Message Library: VS2 MVS Utilities Messages**
- **OS/VS Message Library: Mass Storage System Messages**
- **OS/VS Message Library: VS2 System Messages**
- **OS/VS Message Library: Linkage Editor and Loader Messages**
- **OS/VS Message Library: VS2 System Codes**
- **OS/VS Message Library: BS2 Routing and Descriptor Codes**
- **IMS/VS Version 1 Messages and Codes Reference Manual**
- **Mass Storage System Extensions Messages**
- **OS/VS2 MVS Hierarchical Storage Manager Messages**
- **EREP Messages**
- **Network Communications Control Facility Messages**
- **ACF/VTAM E Messages and Codes**
- **ACF/VTAM Version 2 Messages and Codes**
- **ACF/TCAM Version 2 Messages**
- **OS PL/I Checkout Compiler Messages**
- **JES 3 Messages**
- **OS/VS2 MVS RACF Messages and Codes**
- **TSO Terminal User's Guide**
- **Information/Library and Library/MVS General Information Manual**
- **Information/Library and Library MVS Installation and Information-Retrieval Guides**

Information/Library contains an online self-story course. This course provides a description of Information/Library with sample dialogs and performance hints.

In addition, an online document, "Hints to Searching Library MVS," has been provided. To review this document, simply do a little search using "Hints" as your search argument, review the table of contents, and review and or print the topics of interest.

Information/Library can be used by customer personnel as an online tool for quick reference to formal documentation related to MVS. It is not a substitute for the library of printed manuals, but supplies a readily available master index to these manuals.

The following is a list of the various subsystems, with their release levels, found in Library/MVS at the announcement date. Updates will be provided as they become available.

- **ACF/NCP/VS, Version 1**
- **ACF/TCAM, Version 2**
- **ACF/VTAM, Version 2**
- **ACF/VTAME, Release 1**
- **COBOL, Release 2**
- **Data Facility Extended Function, Release 1.0**
- **Data Facility/Data Set Services, Release 1.0**
- **DB/DC Data Dictionary, Release 3.0**
- **Document Composition Facility and Document Library Facility, Release 2**
- **Environmental Recording, Editing and Printing, Release 1.3.0**
- **Hierarchical Storage Manager, Release 3.1**
- **Information/Library, Release 1.0**
- **IMS/VS DBRC, Version 1 Release 2**
- **IMS/VS, Version 1 Release 2**
- **JES2, Release 2**
- **JES3, Release 2**
- **Mass Storage System, under OS/VS1 Release 6.7 and OS/VS2 MVS Release 3.8**

- **Mass Storage System E, under OS/VS1 Release 6.7 and OS/VS2 MVS Release 3.8**
- **Network Communication Control Facility, Release 2**
- **Network Routing Facility, Release 1**
- **Network Terminal Option, Releases 1 and 2**
- **OS/VS2 System Programming Library MVS Release 3.8**
- **PL/I, Release 4.0**
- **Resource Access Control Facility, Release 1.4**
- **Resource Management Facility, Release 2.4.1**
- **System Network Architecture, Release 1**
- **TCAM, Release 4 Version 2**
- **TSO, Release 1.3.0**
- **TSO/E, Release 1.3.0**
- **Vector Processing Subsystem/SP, Release 1**
- **VS/APL, Release 4**
- **VS FORTRAN, Release 1.1**
- **VSAM, Under OS/VS2 Release 3.8**
- **3800 Printing Subsystem, under OS/VS2 Release 3.8**

Information/Library and Library/MVS have been specially designed to provide the data base organization, search, retrieval and support functions required by the highly structured organization of SRLs. The products have been optimized for ease of operation, ease of use and quick results. Data processing professionals and inexperienced personnel should be able to improve the productivity and completeness of their information gathering activities.

Summary of Information/Library II Capabilities

- **Context search based on manual-like structure**
  - **Search on title (including order number)**
  - **Search on abstract**
  - **Search on heading**
  - **Search on index**
  - **Search on heading and index**
  - **Search on various combinations of the above**
- **Text profiling helps determine search result relevance**
  - **Display of table of contents above a result heading**
  - **Display of all index terms associated with a result heading**
- **Word fragment searches**
- **Dialog capabilities for easy efficient inquiries**
  - **Small number of comprehensive, yet easy-to-use functions**
  - **User guidance by fill-in-panels**
  - **No need to learn any command syntax**
  - **Extended search terms: phrases and word fragments**
  - **Search operations based on previously obtained results**
- **Online tutorial and help facilities**
  - **Educational panels**
  - **Help panels, available at any dialog step**
- **Off-line printing**
  - **Parts to be printed are user selectable**
  - **User comments can be added**
  - **Print information can be directed to specific printers**
  - **SYSOUT data sets**

Information/System II provides a broad spectrum of IBM-supplied planning and corrective information.

A proven productivity aid the Information/System program product is an interactive retrieval facility based on key words for searching data files. It is designed for ease of use by data processing professionals. The IBM Information Network has installed this program product and its data base features in its Tampa computer complex. Since the contents of the files are updated frequently, current information is available.

The data bank contains consolidated technical information for MVS, VM/370, DOS/VSE, or OS/VS1 environments, primarily from IBM support and maintenance locations. These locations provide relevant product information on major IBM programming components. Including operating systems, compilers, assemblers, access methods, DB/DC products, emulators, job entry subsystems, utilities and interactive products. These IBM locations also provide numerous published articles and documents that give additional insight into the proper planning, installation and maintenance of IBM programming and system component products.

Access to this technical material is in the form of abstracts or complete text, including:

- **Technical product descriptions of recent IBM Programming announcements**
- **Technical articles or abstracts produced by IBM support organizations**
- **Program Temporary Fix (PTF) cover letters and Program Level Change (PLC) information, plus current status and planning information**
- **Brief descriptions of, and schedules for, selected educational offerings**
- **Table of contents with appropriate chapter numbers from selected IBM publications**

Summary of Information/System II Capabilities

Information at your service.

Retrieval capabilities have been developed to help support data processing professionals' interest in and their need for different kinds of information.

The Information/System II retrieval program is designed to recognize specific key words that relate to products of interest to the data processing organization. A single key word can be used or multiple key words can be combined using "and," "or," and "not" connectors.

Information/System II gives each user many choices, including the ability to:

- **Search all data files or only selected files**
- **Retrieve full texts or only titles**
- **Limit a search to the latest file additions**
- **Browse through adjacent entries**
- **Print a hard copy of any selected portion of a technical document**

Timely, Comprehensive Information

Information/System II is designed with the needs of system programmers in mind. It should help reduce turnaround time in getting answers to technical questions. It helps reduce the overall time DP professionals must spend getting those answers. Information/System II can be a valuable productivity tool every day . . . from planning for the initial installation, through maintaining and tuning specified IBM products, and finally, through transition to the latest releases or replacement products.

IBM Information Network keeps the data files up-to-date for you. The information is stored at the Tampa computer complex and is updated frequently to keep it more current. Obsolete information is removed after a warning period.

Designed for Efficient, Easy Use

Information/System II has been designed with simplicity of use as a primary consideration. An orientation module is provided to teach the first-time user how to operate the system and how to structure search arguments in order to find the desired information. Using a minimal set of commands, a user may retrieve and display the desired data. An interactive HELP file facilitates learning and is designed to show how to make the most efficient use of this product. Glossaries provide alphabetical access to all key words.

Let Us Tell You More

If you would like to attend a demonstration or seminar on **Data Bank for DP Professionals** or would like to have a marketing representative contact you, write:

IBM Information Network
P.O. Box 30104
Tampa, FL 33630-3104

Or, call IBM toll-free: 800-631-5582.

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IBM INFORMATION NETWORK

Network Management

Product Description

INSURANCE COMMUNICATION SERVICE

The IBM Information Network's Insurance Communication Service is designed to speed and simplify communications between thousands of independent agencies around the country and insurance company home offices.

The new service offers the following capabilities:

- **A wide variety of computer terminals, minicomputers and large processors can be attached to the network with protocol conversion capabilities for "bisynchronous" communication;**
- **Messages from agencies or companies can be delivered immediately or can be stored and later forwarded on either a scheduled or demand basis;**
- **Agencies and companies can take advantage of advanced store and forward features such as status query, directory services, priority options, and message routing to multiple destinations;**
- **The service supports the industry transmission standards as well as IBM's "Systems Network Architecture" and "bisynchronous" protocols;**
- **The network can support custom-designed applications, such as editing routines, developed by insurance companies;**
- **Companies can communicate between their own locations — among regional, branch, claims and home offices — as well as with other companies;**
- **Companies can offer "interactive services" to network users, broadcast "news" and provide administrative services;**
- **Companies and agencies also may connect to the IBM Information Network's Tampa, Florida computing complex to use the more than 100 standard IBM computing programs available there;**
- **Companies and agencies can use an online problem reporting system and take advantage of a service for managing attachment to the network;**
- **The network is generally available around the clock, seven days a week.**

The Insurance Communication Service meets the requirements for communication between architecturally dissimilar agency computers and terminals located throughout the United States, and insurance companies' computers and terminals. It provides a single, unified network that offers simplified communications at reduced hardware and software costs, as well as faster turnaround for improved customer service.

The IBM Information Network is based on IBM's System Network Architecture (SNA) and uses techniques that enable devices using other protocols to communicate through the network. With this capability, insurance company host computers, many of which use the SNA protocols, will be able to use the Insurance Communication equipment using non-SNA protocols such as "3780" and "3275" bisynchronous protocols.

The IBM Information Network also provides agencies access to the data processing resources of insurance companies as well as the network's Tampa computing center.

Network Access — Communication Methods

Through the network, independent agencies can communicate easily with insurance companies attached to the service, enabling the agencies to do business with a number of carriers while retaining independence of choice.

For insurance companies, the service provides an existing network with flexibility for growth. This can enable a company to avoid or limit the costs of designing, implementing and operating a proprietary network. The new service accommodates communications among a company's locations as well as with independent agencies nationwide.

Users of the IBM Insurance Communication Service have two basic methods of Communication: "store and forward" and "interactive processing."

Store and forward service permits messages and insurance transactions to be sent immediately to specific users through the IBM Information Network or retained for transmission when requested. Other advanced capabilities such as directing a single message to multiple locations and querying network status will also be available.

Users have the option of sending "store and forward" messages over leased lines or with a "dial-up" connection. With the dial-up option, agencies are able to send and receive a typical day's transaction data from one or more insurance companies during a single telephone connection to the network.

Users can also elect to have the IBM Information Network store data for later retrieval. Long term "archival" storage is also available.

Interactive Processing

With the interactive processing service, the IBM Information Network establishes direct communication between agency computer equipment located anywhere in the U.S. to an insurance company's in-house computer. The network's computers validate authorization and security codes and then link the user's equipment to the company's computer.

The necessary checking of communication line status and other tasks associated with operating complex data processing networks are also handled by the IBM Information Network. This frees users from many network management concerns.

Insurance companies have the option of having their programs installed and running in IBM's Tampa computing center. They may also elect to expand their private networks through the use of the IBM Information Network, giving them a cost-effective alternative for network expansion or to accommodate additional users.

Pilot testing of the "store and forward" is in progress with general availability scheduled for July, 1983.

While the Insurance Communication Service offers functions tailored to the specific needs of the property and liability insurance industry and incorporates industry-developed transmission standards, its basic capabilities are appropriate to other segments of the industry, such as life and health insurance.

Let us tell you more

If you would like to attend a demonstration or seminar on the **Insurance Communication Service** or would like to have a marketing representative contact you, write:

IBM Information Network
P.O. Box 30104
Tampa, FL 33630-3104

Or, call IBM toll-free: 800-631-5582.

COMPANY PROFILE

QUOTRON SYSTEMS INC.
5454 Beethoven Street
Los Angeles, CA 90066

Telephone: (213) 827-4600

President: Milton E. Mohr

Status: Public Company, NASDAQ

Year Founded: 1957

Fiscal Year End: December 31

PERFORMANCE

	1978	1979	1980	1981	1982
Revenue ($ millions)	$ 39.4	$47.4	$ 63.8	$ 88.1	$121
Percent growth	18%	20%	35%	38%	37.2%
Net income ($ millions)	$ 4.47	$ 7.0	$ 8.9	$ 12.5	$17.0
Percent growth	(8%)	57%	27%	40%	36.4%

BUSINESS MIX

Quotron's entire revenue is obtained from a single industry sector: Financial Information Services. This is further broken down into:

- 91% from computer services (1% from professional services).
- 9% from hardware sales (terminals) and related installation/maintenance. A joint venture with Continental Corporation (INSURNET) services insurance agents (policy/claims processing) and will contribute significant growth in the coming years.

GOALS & OBJECTIVES

Quotron is the leading on-line stock quotation distributor with over 50,000 terminals installed. Its objective is to be the prime supplier of on-line services to the financial community, which is a vast market of vertical niches, each of which has its own specialist needs. So far Quotron has had difficulty expanding beyond its prime service business. INSURNET is the first tentative step. The principal difficulty with this approach is that Quotron must have in-house capabilities that allow an understanding of the user base it intends to serve. So far it has been content to rely on outside parties (American Information Development and Continental).

CURRENT STRATEGY

The current strategy is to expand the services that are offered to the installed customer base by adding office automation software capabilities to the on-line service and upgrading the hardware used by the customers. Quotron's new Quotron 1000 terminal system is a dual microprocessor based device offering word processing, local processing, electronic mail, time management, and data base access through the Quotron network.

Quotron will now add third-party data base access through the network it uses for its mainstream service but should immediately begin investment in its own satellite/microwave/cable network (e.g., Reuters) which would reduce the main cost component of its services - communications.

Quotron minuscule debt/equity ratio (less than 0.01) places it in a strong position for acquisitions, but INPUT does not believe the company will be active in that field.

CAPABILITIES

Quotron's main offering is two varieties of the same financial information service:

- The Quotron 800 based stock, commodity, and option quotation systems, which represents 90% of Quotron's revenues.
- The newer Quotron 1000 which introduces office automation features (word processing, electronic mail, appointments, calendar, etc.)

In addition third-party data bases and customized proprietary data bases may be accessed through the Billboard Dispatch Service. Quotron offers professional services help in generating these customized proprietary data bases which generated 1% of 1982 revenue.

Nearly 20% of Quotron's revenue comes from Merrill Lynch, Pierce, Fenner and Smith, Inc. This company recently announced it will begin to develop its own in-house system using IBM PCs. Similar movements can be expected from other large customers (such as Dean Witter Reynolds and Charles Schwab and Company).

Quotron also manages, supports, and engineers the INSURNET system on behalf of Continental for its insurance agents.

Quotron's company image is the leader of its field. The product image is still that of the premier service but there are some alternatives on the scene now that are challenging the dominant position Quotron used to enjoy.

MANAGEMENT

The average age of Quotron's executive officers is 56 years. They have nevertheless managed a 32% compound average growth rate since 1978 - a commendable performance. These Quotron managers all joined the company in 1971 or earlier which has meant stability but also lack of new blood.

Quotron seems thin on the ground in terms of management depth and must now face a new era of competition, where the competitors are aggressive, financially strong, and probably technically superior. This will occur just as many of the old guard managers should be retiring - a difficult transition.

The senior management of Quotron is shown in Exhibit A.

ASSUMPTIONS OF FIRM

Quotron had 100% of the electronic, on-line stock quotation business when it began the business in 1957 (as Scanthin Electronics in Los Angeles). Over the next ten years it gradually lost market share to Bunker Ramo, GTE, and others. Now, with the takeover of GTE Brokerage Services by ADP, the rapid development of Telerate and Reuters, Quotron must face a trio of very aggressive competitors at a time when market growth (in terms of number of accounts) will be harder to come by.

Quotron has yet to meet real competition but is sufficiently entrenched that it may not suffer unduly. The biggest competition of all is the conversion of its large accounts to in-house operations (e.g., Merryl Lynch).

GENERAL CHARACTERISTICS

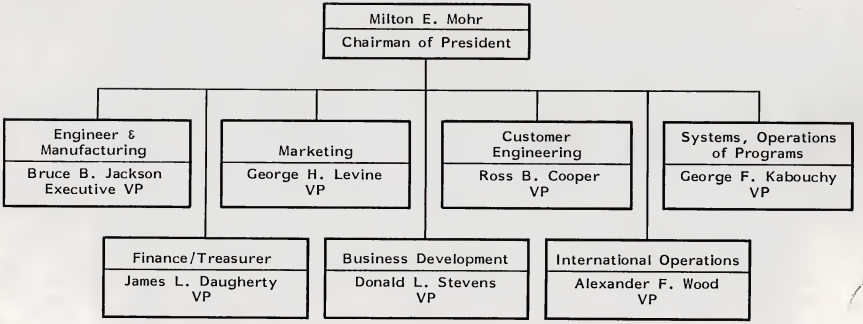
Quotron sells its services through its own direct sales force. It has not made any significant acquisitions or divestitures. A major joint venture with the Continental Company and American Information Development (with an option for Quotron to buy out AID to achieve 50% ownership) is trying to enter the insurance agent on-line support market with little success to date. Another joint venture with AP-Dow Jones markets Quotron services abroad.

Quotron has the knowledge and capability to address two major markets: private corporate networks and office automation integration. It does not appear to have recognized or targeted either of these high growth areas despite having products that serve them. It may regret this in later years. An excellent match would be to jointly market its capabilities with WANG and abandon its in-house manufacturing.

Quotron's uniqueness is its presence (in the form of a terminal) on so many of the financial service managers desks. This is equivalent to the necessity of microcomputer manufacturer occupying retail store shelf space.

EXHIBIT

QUOTRON ORGANIZATIONAL CHART



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COMPANY PROFILE

REUTERS
85 Fleet Street
London EC4P 4AJ
United Kingdom

Telephone: London 250.11.22

Chairman: Sir Denis Hamilton, DSO

Status: Public Company, NYSE

Year Founded: 1851

Fiscal Year End: December 31

PERFORMANCE

	1978	1979	1980	1981	1982
Revenue ($ millions)	$102	$115	$135	$ 208	$ 270
Percent growth	N/A	12.7%	17.4%	54%	29.8%
Net income ($ millions)	$4.8	$4.7	$4.9	$21.0	$50.0
Percent growth	N/A	(2%)	4%	329%	138%

BUSINESS MIX

Twenty years ago only 40% of Reuters' revenue came from financial services, and Reuters was losing money. An attempt was made to sell the company which was unsuccessful.

Now 90% of revenue comes from financial services, and the company is making an 18.5% return on revenue that is growing 30% per annum.

GOALS & OBJECTIVES

The company wants to remain (become) the leading world business information/news agency by developing and adapting the way it does business (e.g., electronic capture, storage, and dissemination of the data it collects through the Reuters Data Network (RDN), which in 1982 began to replace the distribution systems previously used).

Reuters has taken a major step towards this goal by merging its general news and economic services (Monitor Services) newsrooms. Separate specialist services continue to be edited separately, but the integration of control and decentralization of distribution has begun. There is a constant flow of new financial services including the recently introduced Reuter Monitor Oil Service, which has already sold faster than any other Monitor Service.

CURRENT STRATEGY

Reuter's current strategy is to maintain its position as the leading world news agency by emphasizing services, making the necessary investment in technology to reduce service costs and delivery time to media and business information subscribers, and to decentralize editorial management of the data bases.

In addition, the company has clearly seen the value of treating news and financial information as simply different types of data, to be handled with the same editorial procedures, staff and care, and to be distributed through the same infrastructure worldwide. Reuters (parent) added nine new bureaus to its network in 1982, and only British Government bureaucracy stopped it from opening more.

Reuters North America's debt/equity ratio is not known but INPUT believes that the U.S. is the principal market target for Reuters (parent) and as such will benefit from substantial investment. Few acquisitions, if any at all, are anticipated.

CAPABILITIES

The company operates 110 offices worldwide with 566 journalists and provides news and financial/business information services to 158 countries through a network of 31,000 terminals.

Reuters North America, which serves the U.S. and Canada, operates its own satellite transmission and reception facilities in Hauppauge, Long Island, N.Y., on a 10-acre site with 45,000 square feet of floor space (of which 23,000 square feet are for the main computer room). Total capital investment to date: $7 million. Revenues from financial services were estimated at $20 million and growth was approximately 10% over 1982. Operations were profitable. Reuters is continuing to invest heavily in the U.S. and Canada despite slower than hoped for growth.

The U.S. subsidiary, IDR Inc., spent $9 million in 1982 on new hardware and software as opposed to $6 million in 1981. 1983 expenditures are expected to rise 50%. IDR manufactures and sells the terminals used by Reuters worldwide. Sales were $15.8 million in 1982.

Two new terminals have been introduced. One captures information on demand from a 5-million-words-per-minute data stream transmitted by Reuters' U.S. satellite, coaxial cable, and microwave networks. The second terminal operates in conjunction with a two-foot dish antenna to capture information, store it, and keep it updated for on-demand use by the subscriber.

Reuters North America has poor company and product images. It is still virtually an unknown company.

MANAGEMENT

There are three tiers of management:

- The Reuters Trust Agreement, formed in 1953 to ensure that Reuters shall at notime pass into the hands of any one interest group or faction (ten trustees): four from the Press Association; four from Newspaper Publishers Association; one each from Australia and New Zealand Press Associations.
- The board of directors.
- The new level of distributed editorial centers that control the entry and quality of the data on the data bases (e.g., Reuters Europe has four regions - London, Paris, Frankfurt, and Zurich - each based on a trading center with wide marketing and technical autonomy).

ASSUMPTIONS OF FIRM

Reuters believes it must always stay independent to preserve its integrity and freedom from bias. The company believes it has been first in forging worldwide news and business information services and is concerned that some very substantial competition is entering its preserve (e.g., Telerate now tying up with Dow Jones News Service to supply similar services in Europe).

The company plans to be bold and innovative with technology, expanding the number of bureaus handling and editing data, while trying to maintain high performance and quality standards. Reuters replaced its entire bank of computers handling the Monitor Services in 1982 and upgraded all of the communications links.

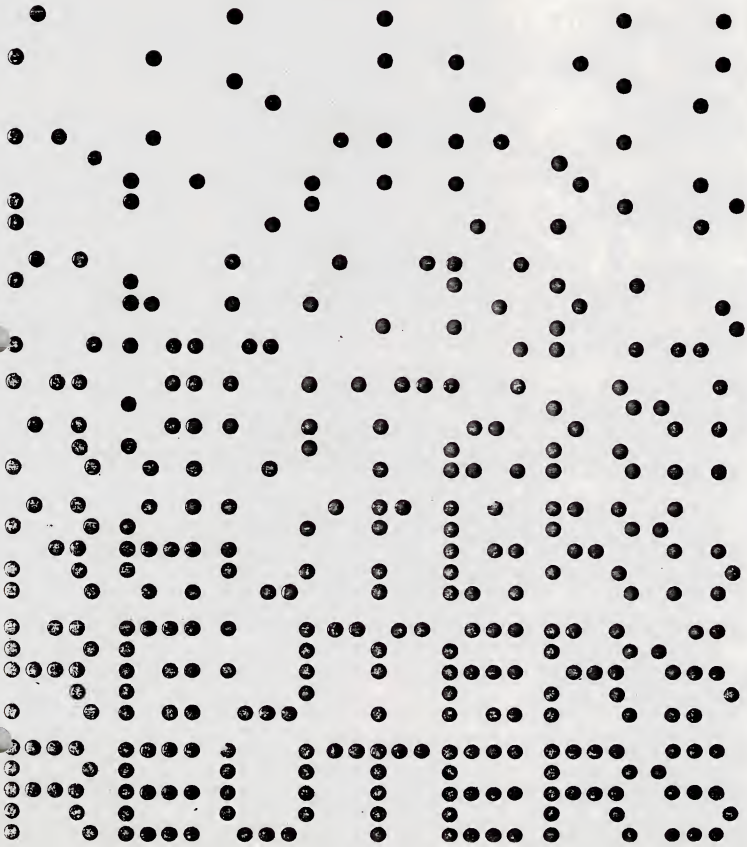
GENERAL CHARACTERISTICS

Business information services (Monitor Services) are sold through Reuters' own direct sales force. European, Middle East, and Far East business has been extremely successful; U.S. business has been less successful due to Quotron, Telerate, and Dow Jones.

Reuters' strength is its worldwide reputation, its combination of news and business information (which currently makes it unique), and the size and quality of its network. Reuters continues to invest in the development of its coverage of geographic locations for both sources of data and distribution/sales potential, and this continued investment will be a vital factor in determining who remains competitive in the years ahead.

Reuters' only major weaknesses are old style management and lack of penetration of the U.S. market, both of which need to be remedied in the short term, but realistically will continue as they are for some time. It has no unique capabilities or services in the U.S. and has an uphill battle to survive in the current marketplace against strong, established competition.

Pages 7, 9 etc
Photographs not included.



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Directors and Corporate Information

Directors

Chairman
Sir Denis Hamilton DSO

Executive directors
G Renfrew, managing director
M E Nelson, deputy managing director
N L Judah, finance director

Non-executive directors
D B Anderson, United Newspapers plc
J E C Dicks, Joseph Woodhead and Sons Ltd
The Hon Alan Victor Hare MC, Financial Times Ltd
A J Miles, Mirror Group Newspapers Ltd
K R Murdoch, News International plc
R Sayers (alternate director), New Zealand News Ltd
E J L Turnbull, The Herald and Weekly Times Ltd Melbourne
R J Winfrey, East Midland Allied Press plc

Executive committee

G Renfrew, managing director
M E Nelson, deputy managing director & general manager
N L Judah, finance director & secretary
K Garry, assistant general manager, responsible for staff policy
M Reupke, editor-in-chief

Secretary

N L Judah FCA

Registered office

85 Fleet Street London EC4P 4AJ Telephone 01 250 1122

Registered number

145516 England

Auditors

Binder Hamlyn 8 St Bride Street London EC4A 4DA

Principal bankers

Bank of Scotland 38 Threadneedle Street London EC2P 2EH

Highlights

Chairman

The accelerated expansion of Reuters continues. The list of those organisations and companies we serve grows each day. Each member of our outstanding staff knows that the company will only accept the highest standard of performance in all our services, and the Board is grateful to them for their response and loyalty. The Board once again congratulates Mr Glen Renfrew and his management team for their resolute and skilled leadership.

Our profit success has made the future of Reuters the subject of much speculation. Whilst accepting the need for a proper respect for our shareholders' interests, the Board reaffirms its commitment to the basic principle of the Reuters Trust Agreement, that control of Reuters shall at no time pass into the hands of any one interest group or faction and that its integrity, independence and freedom from bias shall at all times be fully preserved.

Reuters is well placed in the highly competitive world of information technology which some very substantial companies are now entering for the first time. We must be vigilant to protect what has been achieved in the 131 years since our foundation and also bold and inventive in the coming days.

Denis Hamilton.

Managing director

Reuters profits confirmed the promise of the previous year with further strong growth to new record levels in 1982. Operating profit rose by £20 million, or 123%, to £37 million and profit after tax increased by £19 million, or 139%, to £33 million. Last year's increases were smaller in percentage terms, but larger in absolute terms, than those recorded in 1981.

The key ratio of profit to revenue approached an acceptable level for the first time in many years. At 20.3%, it compared with 11.8% in 1981 and only 4.6% in 1980. Containment of costs and better operating margins played an important part in achieving this improvement in the quality of the company's earnings. Revenue was £41 million, or 30%, higher at £180 million.

The Board recommends a dividend of £60 per £1 of issued stock, representing 17% of after-tax profit, compared with 14% for 1981. The payment for 1981 was the first for 41 years.

Capital investment, mostly in hardware for installation with subscribers or in Reuters computer and communications centres, rose to £45 million from £28 million in 1981. Current cash flow was sufficient to cover capital spending and the repayment of all outstanding term loans worth £7 million. It also generated useful interest income.

Reuters and its US subsidiary, IDR Inc, spent a total of £6 million on technological development in 1982, compared with £4 million in 1981. Development spending is due to rise further this year.

A major expansion of Reuters reporting network was launched in 1982, with the initial goal of opening twelve new international bureaux. In the event, we opened only nine, but added two more in the first days of 1983. We plan to accelerate editorial expansion in 1983.

Glen Renfrew.

Key Statistics

Journalists 566

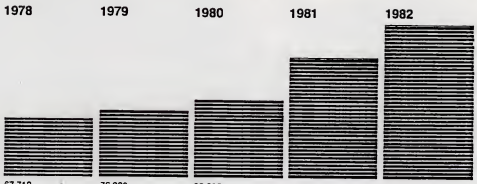
Offices 110

Terminals 31,000

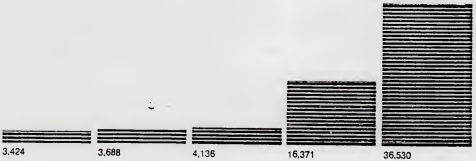
Countries receiving Reuter News 158

Financial Summary

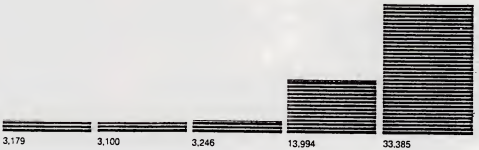
Turnover £000



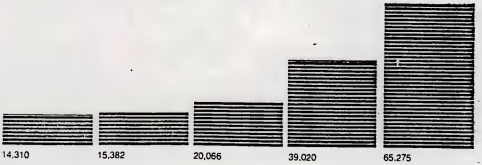
Operating profit £000



Profit after taxation £000



Fixed assets £000



Reporting network expansion

Reuters added nine new bureaux to its reporting network in 1982 and strengthened a number of existing bureaux. This expansion was part of its plan to improve services to media and business information subscribers. Other bureaux would have been opened if governments had given approval.

In Europe new bureaux with full-time correspondents were opened in Berne and Düsseldorf. We established a reporting bureau in Rotterdam staffed by correspondents from Amsterdam. In North America we opened new bureaux in Houston and Detroit. In Asia we set up offices in Dacca and Karachi. In the Middle East we opened a bureau in Jerusalem. In Africa we appointed a permanent correspondent in Lagos, a bureau reopened the previous year. We increased reporting staff in a number of existing offices in Europe, North America and Central America.

Integration and decentralisation

Reuters merged its previously separate general news and economic service newsrooms in London to improve co-ordination in the editing of services to all subscribers. Although Reuters continues to edit separate specialist services for its different markets the integration of the news gathering networks and greater co-ordination of editing has improved the content of all services.

Reuters transferred to its Hong Kong desk the editing of World Services during the European night. These were previously controlled in London. The purpose of the change was to strengthen services to and from Asia, to eliminate duplication of effort and to decentralise editorial management. Reuters appointed an Editor, Africa, to be resident in Nairobi, completing the decentralised structure with Editors for Europe, North America, Asia, the Middle East, Africa and Latin America and the Caribbean.

Major stories

Our sizeable staff in Beirut survived the most dangerous and difficult situation of the year, the Israeli invasion of the Lebanon and the events which followed. The staff, who both report events in the Lebanon and edit a large part of Reuters Arabic Service, braved personal danger to maintain operations. Some suffered the loss of close relatives or saw them injured. The story itself needed experience, knowledge and good contacts to separate rumour from fact and to provide a clear picture of what was happening.

The war between Britain and Argentina in the South Atlantic produced its own problems for an organisation with its head office in London. The British government did not include Reuters in the initial Press contingent which set sail for the Falklands. Only after strong protests did it allow a Reuter correspondent to join reporters with the British task force. The Argentine authorities did not permit Reuters to accompany Argentina's forces. Nevertheless the accuracy and impartiality of the Reuter report was not challenged by either side.

Less dramatic but important developments such as the debt problems of several Latin American countries, fluctuating interest rates and currencies, the constant debate over oil prices and such complex situations as those in Poland and Central America demanded careful and informed reporting.

Press awards

Several Reuter correspondents received Press awards for the quality of their work. Brian Mooney was commended for his reporting of Poland. David Finch of the New York staff received an award for his financial reporting and Michael Littlejohns for his reporting of United Nations affairs. Nicholas Moore was awarded the international Bernard-J Cabanes prize for his reporting of the oil scene and OPEC affairs.

Revenue and contribution increases

Revenue, contribution and market share increased during the year despite increasing competition, notably in the money market and commodity sectors of our business. We countered this competition with a combination of new products, aggressive pricing and improved information displays on the existing Reuter Monitor video retrieval products.

New oil service

The main new product launched during the year was the Reuter Monitor Oil Service, which has already sold faster than any previous new product. It consists of physical prices contributed by dealers and terminal market prices together with news and economic indicators.

The Reuter Monitor Shipping Service, which was launched in 1981 in the tanker market supplying rapidly moving information on charters to international shipping brokers, was extended into the dry cargo markets. Other new products included a selective broadcast commodities service on video terminals aimed at the futures market specialists who do not need our more comprehensive commodities services. We also launched a series of data-feed products which allow a client to extract real-time data from his Reuter terminal for processing by his own computer.

Dealing

The Reuter Monitor Dealing Service sold steadily throughout the year, reaching a global total of 385 contracts. The service allows Reuter subscribers to transact deals on Reuter terminals through the Reuter network of leased lines and computers. The service was extended into the bullion market and on a trial basis into the international bonds market. Thirty-seven of the world's top 50 banks now subscribe to the Dealing Service.

The Reuter Monitor system was extended and developed. All the main computers were replaced by more powerful models and the communications linking the main centres were enhanced. The rate at which new data was inserted by contributors into the system increased, indicating ever-increasing market activity.

Reuter Data Network

Our main development project remains the preparation for the Reuter Data Network (RDN) which in 1983 will begin to replace the distribution systems now used in Europe. The new network will be based on North American technology and significantly add to the facilities available to our clients in all sectors. The main improvement with the new system will be the ability to deliver data contributed by dealers and data from terminal markets at lower cost while giving subscribers the facility of arranging for themselves most of the data they wish to view regularly. This will allow clients to follow more interrelated financial markets more easily.

Other development undertaken in Reuters Europe included additions to our range of interface products. These products are devices installed in the subscriber's office which link the Reuter desk-top video terminal to his own information system. In this way the subscriber can have on one screen and keyboard most of the information sources and communications devices he requires when trading. Another type of specialized product developed during the year was the programmable keyboard. This device can be programmed or set up to perform specialized functions such as rapid page retrieval or routine data contribution as specified by a single subscriber.

nagement

Management in Reuters Europe was decentralised through the creation of four regions with wide technical and marketing responsibilities. The regions are based on our four main trading centres of London, Paris, Frankfurt and Zurich. Already this structural change has permitted our local trading and technical management to respond more quickly to local market requirements.

Reuter Foundation

The Reuter Foundation was established in November to award one-year university Fellowships to journalists from developing countries. The Foundation's aim is to help narrow the gap between industrial and developing countries in the use of information technology. A successful worldwide advertising campaign attracted more than 200 applicants for the first four Reuter Fellowships tenable at Oxford and Stanford universities. The Company has committed £1 million to the Foundation over a six year period.

Asia, Australia and New Zealand

The strong growth pattern of recent years was maintained in the region in 1982, supported by an increasingly decentralised management structure. Dependence on the major markets of Hong Kong and Singapore was balanced by further geographical extensions of our computer services and the range of facilities was enlarged. The Reuter Monitor was launched in Indonesia and Taiwan, and agreement was received from the local authorities to start up in Thailand early in 1983. We pushed deeper into the Japanese provincial market, taking the Reuter Monitor to Fukuoka. The Reuter Monitor Dealing Service was successfully introduced to Hong Kong and Singapore, giving Reuters a clear technological lead over our increasingly active competitors. Computer systems were upgraded and regional technical resources strengthened. We introduced computer interface facilities to link Reuter systems with those of major clients in the region. In Australia, we seconded two experienced Reuter sales executives to work with the Australian Associated Press on expanding our business.

Middle East

Business continued to expand despite a slump in Arab oil revenues, the virtual collapse of the Gulf commodity investment sector and a major Middle East crisis in Lebanon. Reuter Monitor services were introduced to Beirut but cut off in June when Syrian tanks occupied and shut down the satellite ground station bringing in our signal. As soon as the fighting died down in September, we obtained an undersea cable connection. The Reuter Monitor Dealing Service was launched in Bahrain, Kuwait and the United Arab Emirates at the same time as in the Far East. The Reuter Monitor Money Rates Service was extended later in the year to Cyprus and Malta, and agreement was reached with the local authorities to start in Turkey early in 1983. As in Asia, we began selling interface facilities to major banking clients. We marketed a new Middle East Regional Service on the Reuter Monitor, with encouraging results.

Latin America

Business in Latin America suffered from the impact of the Falklands war, the Mexican economic crisis and regulatory problems in Brazil, but progress was still achieved in expanding our subscriber base and service range. In Argentina, our editorial and business operations survived the South Atlantic conflict intact but sales were inevitably affected by the depressed economy. In Mexico, too, the nationalisation of banks and imposition of exchange controls reduced our forecast growth, but in both centres we expect to recoup in 1983 through the marketing of domestic services. In Brazil, we received agreement from the authorities after lengthy negotiations to introduce the Reuter Monitor Money Rates Service, subject to local manufacture of equipment.

Africa

The African management region saw healthy growth in 1982 with increased penetration of Black Africa. The Reuter Monitor service went live in Zimbabwe, consolidated its subscriber base in the Ivory Coast and by the year-end was about to be extended to Senegal. The remaining radio-teletype transmissions to African subscribers were phased out in favour of satellite circuits. Regional management for Africa was transferred during the year from London to Nairobi in line with the decentralisation policy already in effect in other overseas regions. Steps were also taken to strengthen our management structure in North Africa and Southern Africa in order to exploit local

Further progress

The momentum of the previous year's advance produced further solid gains in both revenue and net results in 1982. However, the severe recession in the US and Canada slowed the pace of revenue growth and heavy investment in new technical, editorial and marketing resources pushed up costs as the year progressed. This brought margins under pressure in the latter part of the year. Further substantial investment, aimed at expanding and improving existing services and extending our product range, is being made. Because of this, we do not expect earnings to resume their former vigorous growth until late in 1983.

Mixed markets

Market conditions for our major revenue-earning services were mixed. Slack demand for industrial raw materials and record production of agricultural products depressed commodity markets and led to business failures and cutbacks by commodity houses subscribing to our services. On the other hand, sales of international financial services remained strong, reflecting extremely active world money markets. Volatile interest rates and oil markets helped services covering financial futures and energy. Cut-price competition persisted at the lower-priced end of our market, but new, low-cost terminals produced by our subsidiary, IDR Inc, and brought onto the market during the year put us into a much better competitive position. The Reuter Monitor Dealing Service became more useful and made further cost savings for a steadily growing list of North American subscribers as its network was extended to the Middle and Far East. Revenue from media and cable services continued to increase steadily despite the adverse economic climate and problems in the cable television industry.

Investment

Capital investment in Reuters new technical centre at Hauppauge, Long Island, NY, approached $7 million by the end of 1982. The centre has its own satellite transmission and reception facilities, standby generators for uninterrupted power supply and 45,000 square feet of floor space, including 23,000 feet in the main computer room. It is located on a 10-acre site with room for expansion when required. Transfer of staff began in 1982 and the new centre is expected to be fully operational by the middle of 1983.

Editorial expansion included new bureaux in Houston and Detroit in 1982 and Dallas in the first days of 1983. In addition, the journalistic staffing of existing bureaux was increased by 10, including specialists in political affairs, energy and money markets. Marketing, sales and customer services were strengthened in order to exploit the improvements and additions to Reuters services resulting from the technical and editorial investment programme.

IDR

Reuters US technological subsidiary, IDR Inc, continued to grow in importance as a manufacturer of subscriber terminals and developer of new technology for use by the parent company around the world. The value of all subscriber terminals and miscellaneous equipment sold by IDR rose to $15.8 million in 1982 from $11.2 million in 1981. Two new subscriber terminals were brought into production, both designed to deliver information services at low cost. One of these captures information on demand from a data stream transmitted at a speed of five million words a minute on Reuters US satellite, coaxial cable and microwave networks. The second terminal is used, in conjunction with a two-foot dish antenna, to capture information from a slower satellite data stream, store it and keep it constantly updated for retrieval at any time by subscribers. Funds were made available in the second half of 1982 for accelerated development of a number of additional IDR products. These include more sophisticated and powerful subscriber terminals than Reuters has used in the past and also high-speed central processing and communications systems for Reuters worldwide network.

Notice of Meeting

The sixty-sixth annual general meeting of the shareholders will be held at Goldsmith's Hall, London EC2 at 12 noon on Friday 10 June 1983.

1 To receive the annual report of the directors and statement of accounts for 1982.

2 To declare a dividend.

3 To fix the ordinary remuneration of the directors.

4 To reappoint Binder Hamlyn as auditors.

5 To authorise the directors to fix the remuneration of the auditors.

6 To report the retirement and appointment of directors.

7 To transact any other business of an annual general meeting.

Any member entitled to attend and vote at this meeting is entitled to appoint a proxy to attend and vote instead of him and such proxy need not also be a member.

N L Judah
Secretary

13 April 1983

Report of the Directors

The directors submit their annual report and audited accounts for the year ended 31 December 1982.

Principal activities

Reuters and its subsidiary companies are engaged in the business of an international news organisation publishing general, economic and financial news, providing news retrieval services to subscribers and selling equipment for this purpose.

Financial results

Operating profit rose by 123% to £36,530,000 from £16,371,000.

Group turnover rose by 30% over the 1981 level to £179,913,000. Overseas revenue represented 83% of this.

No current cost accounts have been prepared because the principles relating to net current replacement cost cannot be applied realistically to the business of Reuters.

Dividends

The directors recommend the payment of a dividend of £60 per £1 of issued capital.

Payment of the dividend requires a sum of £5,817,000 leaving £27,568,000 which has been carried to reserves.

Fixed assets

During the year the group invested £44,631,000 in fixed assets mainly for use in its computer based information retrieval and communications systems.

The depreciation charge rose by £10,144,000 to £18,073,000.

Employees

The total number of persons employed by the group at 31 December 1982 was 3,205. The weekly average number employed in the United Kingdom during 1982 was 1,191.

It has been and is, group policy to give full and fair consideration to the employment and development of disabled persons, having regard to their qualifications and abilities.

Total pension fund contributions and pensions paid were £2,956,000.

The aggregate remuneration paid in respect of employees within the United Kingdom was £16,989,000. The total world wide salary cost was in the region of £53,000,000.

Charitable contributions

Charitable contributions made by the group during the year amounted to £181,000.

Report of the Directors

Chairman

Sir Denis Hamilton was reappointed by the Board for a second three year term as chairman on 10 June 1982.

Directors

Mr R J Winfrey and Mr K R Murdoch retired by rotation on 10 June 1982 and were each reappointed for a further term.

Mr I G Park who had served as a director for four years resigned on 10 June 1982. Mr D B Anderson was appointed in his place.

With the exception of Mr D B Anderson, the directors listed on page 2 served throughout the year.

Mr D B Anderson, The Hon Alan Victor Hare, Mr R Sayers and Mr E J L Turnbull retire by rotation at the annual general meeting.

The directors' interest in the equity of the company held throughout the year under the terms of Reuters Limited Employees' Share Scheme was as follows:

	"E" shares 10% paid
Mr G Renfrew	545
Mr M E Nelson	361
Mr N L Judah	306

None of the directors had any other interest in any transaction or arrangement with the company which requires disclosure.

Share capital

Details of movements in the authorised and issued capital are set out in notes on the accounts.

Auditors

In accordance with section 14 (1) of the Companies Act 1976 a resolution to reappoint Binder Hamlyn as auditors will be placed before the annual general meeting of the company on 10 June 1983.

By order of the board

Denis Hamilton
Chairman

Glen Renfrew
Managing director

13 April 1983

Trustees

The owners of Reuters undertake, through the Reuters Trust Agreement made in 1953, to ensure that Reuters shall at no time pass into the hands of any one interest group or faction, that its integrity, independence and freedom from bias shall at all times be fully preserved, and that no effort shall be spared to expand, develop and adapt the business of Reuters in order to maintain its position as the leading world news agency. Ten trustees ensure that this undertaking is observed. Four are appointed by the Press Association, four by the Newspaper Publishers Association and one each by the Australian Associated Press and New Zealand Press Association.

The present trustees of Reuters are:
S G G Clarke OBE, Courier Press (Holdings) Ltd
The Rt Hon Lord Hartwell MBE, Daily Telegraph Ltd
J E LePage, Newspaper Publishers Association Ltd
J G S Linacre CBE AFC DFM, Yorkshire Post Newspapers Ltd
The Rt Hon Lord Matthews, Fleet Holdings PLC.
A H McLachlan
The Rt Hon The Viscount Rothermere, Associated Newspapers Group plc
G T Upton DSO, New Zealand News Ltd
J S Wallwork CBE
W M Young OBE

Trustees are appointed for five years and may be reappointed. They are bound to meet at least once a year to consider whether the terms of the trust have been met.

Group Results in Brief

	1982 £000	1981 £000	% Change
Turnover	179,913	138,804	29.6
Operating profit	36,530	16,371	123.1
Funds generated from operations	54,369	24,519	121.7
Additions to fixed assets	44,631	27,629	61.5
Net assets	59,537	31,908	86.6
	1982	1981	
Number of full time staff	3,205	3,023	6.0

Group Profit and Loss Account for the Year ended 31 December 1982

	Notes	1982 £000	1982 £000	1981 £000	1981 £000
Turnover	1		£179,913		£138,804
Operating profit	2		36,530		16,371
Share of associated companies' profit	1		200		310
Profit before taxation			36,730		16,681
Taxation:					
Reuters and subsidiaries	4	3,340		2,678	
Associated companies		5		9	
			3,345		2,687
Profit after taxation attributable to shareholders of Reuters			33,385		13,994
Dividend proposed	5		5,817		1,924
Retained profit	8		£27,568		£12,070

Group Balance Sheet at 31 December 1982

	Notes	1982 £000	1982 £000	1981 £000	1981 £000
Funds employed					
Share capital	6		95		95
Share premium account	7		862		801
Reserves	8		58,580		31,012
			59,537		31,908
Medium term loans	9		–		7,393
			£59,537		£39,301
Represented by					
Fixed assets	10		65,275		39,020
Investments	11		892		712
			66,167		39,732
Advance corporation tax recoverable			2,493		–
Current assets:					
Stocks	12	2,238		2,541	
Debtors		25,497		19,420	
Bank balances and government securities	13	8,897		4,459	
		36,632		26,420	
Current liabilities:					
Loans	9	–		86	
Bank overdrafts		1,842		815	
Creditors		31,401		21,253	
Taxation		6,695		2,773	
Dividend proposed		5,817		1,924	
		45,755		26,851	
Net current liabilities			(9,123)		(431)
			£59,537		£39,301

Anthony Miles
Director

R J Winfrey
Director

Source and Use of Funds by the Group for the Year ended 31 December 1982

	1982 £000	1982 £000	1981 £000	1981 £000
Source of funds				
Profit before taxation		36,730		16,681
Less share of associated companies' profit		200		310
		36,530		16,371
Depreciation, amortisation and fixed assets written off		18,073		8,417
Profit on sale of fixed assets and investments		(234)		(269)
Total generated from operations		54,369		24,519
Funds from other sources				
Proceeds from issue of shares		61		17
Proceeds from sales of fixed assets and investments		552		586
		£54,982		£25,122
Use of funds				
Purchase of fixed assets		44,631		27,629
Net decrease in loans		7,479		2,760
Dividend paid		1,924		–
Tax paid by group companies		1,911		409
Increase in working capital:				
Stocks	(303)		(9,212)	
Debtors	6,077		5,527	
Creditors	(10,148)		(3,610)	
Bank balances and government securities	3,411		1,619	
		(963)		(5,676)
		£54,982		£25,122

Reuters Limited Balance Sheet at 31 December 1982

	Notes	1982 £000	1982 £000	1981 £000	1981 £000
Funds employed					
Share capital	6		95		95
Share premium account	7		862		801
Reserves	8		60,101		31,750
			61,058		32,646
Medium term loans	9		–		7,393
			£61,058		£40,039
Represented by					
Fixed assets	10		60,865		35,615
Investments	11		102		117
Interest in subsidiaries	14		7,005		4,740
			67,972		40,472
Advance corporation tax recoverable			2,493		–
Current assets:					
Stocks	12	2,238		2,541	
Debtors		23,637		18,075	
Bank balances and government securities	13	7,338		3,854	
		33,213		24,470	
Current liabilities:					
Bank overdrafts		1,697		813	
Creditors		28,648		19,459	
Taxation		6,458		2,707	
Dividend proposed		5,817		1,924	
		42,620		24,903	
Net current liabilities			(9,407)		(433)
			£61,058		£40,039

Anthony Miles
Director

R J Winfrey
Director

1 Accounting policies

Accounting basis

As in previous years the group accounts have been prepared on the historical cost basis.

Basis of consolidation

The group accounts include:

(a) the accounts of the parent company and its subsidiaries, which are made up to 31 December.

(b) the group's share of the results of its associated companies which are those companies not being subsidiaries in which the company holds 20% or more of the equity voting capital.

The accounts of the associated companies are made up to 31 December each year with the exception of Visnews Limited where the results subsequent to 31 March have been taken from unaudited management accounts. The associated companies have never declared a dividend since their incorporation and therefore the profit is not available to Reuters for reinvestment or working capital.

Turnover

Turnover comprises the total amount of subscriptions to news and allied services applicable to the year and the invoiced value of equipment sales (see also note 15).

Foreign currency conversion

Fixed assets are converted to sterling at the rates ruling on the date of acquisition.

Loans expressed in foreign currencies are converted into sterling at the foreign exchange rates ruling at the balance sheet date.

Current assets and liabilities located overseas or denominated in a foreign currency are converted into sterling at the foreign exchange rates ruling at the balance sheet date.

The exchange rates used for the currencies of greatest importance to Reuters are:

	1982	1981
French franc	11.12	10.94
German mark	3.94	4.33
Swiss franc	3.36	3.46
United States dollar	1.62	1.91

Income and expenditure in foreign currencies are recorded in sterling at the rates ruling at the dates of the transactions. The profits or losses of foreign subsidiaries and branches together with all gains and losses arising on conversion are reported as part of the operating profit for the year.

1 Accounting policies (continued)

Fixed assets

Depreciation is calculated to write off the assets in equal instalments on the following bases:

Freehold property	Over expected useful life
Leasehold property and improvements	Over term of lease
Communications equipment, printing and office equipment	Over the expected operational life which in most cases is 5 years
Motor vehicles	Over 4 or 5 years

Accelerated depreciation is charged where asset lives are diminished.

Additions and replacements to furniture and fittings are charged against the profit in the year of purchase.

Research and development

Research and development expenditure is charged against the profit in the year in which it is incurred.

Stocks

Stocks and work in progress are valued at the lower of cost and net realisable value.

Cost is calculated on a first in first out basis by reference to the invoiced value of supplies and attributable costs of bringing stocks and work in progress to their present location and condition.

Net realisable value is the estimated market value less selling costs.

Pension funding

Reuters operates an exempt approved scheme for the purpose of section 21 of the Finance Act 1970, covering the majority of its employees. The scheme is fully funded and contributions of the employees and of Reuters are held and administered under a trust completely independent of Reuters finances. The contributions are charged against trading profits.

With effect from 6 April 1978 Reuters was issued with a contracting-out certificate for the purposes of part III of the Social Security Pensions Act 1975.

Taxation

Provision is made at 52% for deferred taxation arising from the excess of capital allowances over depreciation charged and other timing differences where it is considered that the potential liability will crystallize in the foreseeable future.

Advance corporation tax on dividends in respect of the year is charged against the results for the year to the extent that it cannot be utilised in the current and next accounting period.

2 Operating profit

	1982 £000	1981 £000
This is arrived at after charging:		
Directors' emoluments	298	410
Auditors' remuneration	248	196
Pension fund contributions and pensions paid	2,956	2,646
Research and development expenditure written off	6,193	4,277
Interest payable	334	662
Hire of equipment	5,490	4,643
Depreciation of fixed assets	18,073	7,929
and after crediting:		
Gross profit on sale of equipment (see also note 15)	870	4,859
Interest received	2,699	658
Profit on sale of fixed assets	249	244

3 Emoluments

	1982 £000	1981 £000
Directors' emoluments:		
Fees	61	45
Ex gratia payment	–	122
Other emoluments	237	243
The emoluments of the chairman were	10	8
The emoluments of the highest paid director were	92	67

The table which follows shows the number of directors and employees of Reuters in the UK whose gross emoluments were within the bands stated. The after-tax figures indicate the net amount receivable after deducting income tax at 1982/1983 rates from the emoluments at the mid point of each band, assuming the recipient is a married man and has no other source of income.

Gross emoluments	Emoluments after tax	1982	1981
Directors:			
Up to £ 5,000	£ 2,484	9	10
£ 5,001 – £10,000	£ 5,984	–	1
£10,001 – £15,000	£ 9,484	1	1
£30,001 – £35,000	£20,225	–	1
£50,001 – £55,000	£28,297	1	1
£65,001 – £70,000	£34,297	1	1
£90,001 – £95,000	£44,297	1	–

3 Emoluments (continued)

Gross emoluments	Emoluments after tax	1982	1981
Employees:			
£30,001 – £35,000	£20,225	20	2
£35,001 – £40,000	£22,297	16	1
£40,001 – £45,000	£24,297	7	–
£45,001 – £50,000	£26,297	4	–
£50,001 – £55,000	£28,297	1	–
£55,001 – £60,000	£30,297	2	–
£60,001 – £65,000	£32,297	1	–
£65,001 – £70,000	£34,297	1	–

4 Taxation

The taxation charge of Reuters and its subsidiaries comprises:

	1982 £000	1981 £000
UK corporation tax at 52%	3,868	–
Relief for overseas taxation	(2,743)	–
Advance corporation tax	(825)	825
	300	825
Overseas taxation	3,040	1,853
	£3,340	£2,678

The charge for UK corporation tax on the profit for the year has been reduced by capital allowances and losses brought forward.

No provision has been made for deferred taxation because it is considered that the potential liability will not crystallize in the foreseeable future.

5 Dividend

The recommended dividend of £60 (1981 – £20) per £1 of issued capital applies equally to all classes of issued stock and shares, whether fully or partly paid.

6 Share capital
Authorised

	1982 £000	1981 £000
"A" Stock	37.5	37.5
"B" Stock	37.5	37.5
"C" Stock	15.0	15.0
"C" Shares – 22,500 of £1 each	22.5	22.5
"D" Shares – 37,500 of £1 each	37.5	37.5
"E" Shares – 10,000 of £1 each	10.0	10.0
Unclassified shares – 40,000 of £1 each	40.0	40.0
	£200.0	£200.0

6 Share capital (continued)

Issued

	1982 £000	1981 £000
Fully paid:		
"A" Stock	37.5	37.5
"B" Stock	37.5	37.5
"C" Stock	15.0	15.0
"E" Shares–5,005 (1981 – 5,004) of £1 each	5.0	5.0
Part paid:		
"E" Shares–1,950 (1981 – 1,212) of £1 each 10% paid	0.2	0.1
	£95.2	£95.1

Under the Reuters Limited Employees' Share Scheme a further 738 "E" Shares, 10% paid, were issued to senior employees.

Details of the directors' interest in the share capital of the company are shown in the directors' report on page 16.

7 Share premium account

	1982 £000	1981 £000
Brought forward	801	53
Arising on issue of shares:		
"E" Shares fully paid	–	731
"E" Shares 10% paid	61	17
	£862	£801

8 Reserves

	1982 £000	1982 £000	1981 £000	1981 £000
Brought forward:				
Reuters		31,750		19,779
Subsidiaries		(1,333)		(395)
Associated companies		595		294
		31,012		19,678
Capitalisation on issue of shares		–		(736)
		31,012		18,942
Retained profit (loss) for year:				
Reuters	28,351		12,707	
Subsidiaries	(978)		(938)	
Associated companies	195		301	
		27,568		12,070
Carried forward:				
Reuters	60,101		31,750	
Subsidiaries	(2,311)		(1,333)	
Associated companies	790		595	
		£58,580		£31,012

9 Loans

Reuters and its subsidiaries repaid all their outstanding loans during the year.

10 Fixed assets

Group

	Freehold property £000	Leasehold property and improvements £000	Communications equipment £000	Printing and office equipment £000	Motor vehicles £000	Total £000
Cost						
31 December 1981	567	2,895	61,787	636	1,708	67,593
Additions	2,091	581	39,022	1,591	1,346	44,631
Disposals	–	–	(578)	(11)	(679)	(1,268)
31 December 1982	2,658	3,476	100,231	2,216	2,375	110,956
Depreciation and amounts written off						
31 December 1981	7	351	27,463	222	530	28,573
Charged in the year	3	252	17,174	262	382	18,073
On disposals	–	–	(615)	(3)	(347)	(965)
31 December 1982	10	603	44,022	481	565	45,681
Net book amount						
31 December 1982	£2,648	£2,873	£56,209	£1,735	£1,810	£65,275
31 December 1981	£560	£2,544	£34,324	£414	£1,178	£39,020

	1982 £000	1981 £000
Leasehold property includes property held on short term lease at a written down value of	£2,864	£2,536

Reuters

	Cost 31 December 1981 £000	Additions/ (disposals) £000	Aggregate depreciation £000	Net book amount 31 December 1982 £000	Net book amount 31 December 1981 £000
Freehold property	567	2,091	10	2,648	560
Leasehold property and improvements	2,470	430	393	2,507	2,245
Communications equipment	57,246	35,930	40,945	52,231	31,229
Printing and office equipment	630	1,566	476	1,720	410
Motor vehicles	1,695	616	552	1,759	1,171
	£62,608	£40,633	£42,376	£60,865	£35,615

	1982 £000	1981 £000
sehold property includes property held on short term lease at a written down value of	£2,498	£2,237

Depreciation charged in the year includes £5,556,000 of accelerated depreciation in respect of communications equipment.

11 Investments

	1982 £000	1981 £000
Held by Reuters:		
Unlisted trade investments, at cost less amount written off	43	43
Shares in associated companies, at cost (see page 32 for details of associated companies)	59	74
	102	117
Reuters share of accumulated profit retained by associated companies	790	595
	£892	£712
The Directors' valuation of the unlisted trade investments was	£43	£43

12 Stocks

Stocks of finished goods amounted to £2,238,000 (1981 – £2,541,000).

13 Bank balances and government securities

	Group 1982 £000	Group 1981 £000	Reuters 1982 £000	Reuters 1981 £000
Bank balances and cash	8,448	4,459	6,889	3,854
Government securities (market value £449,000)	449	–	449	–
	£8,897	£4,459	£7,338	£3,854

14 Interest in subsidiaries

	1982 £000	1981 £000
Cost of shares less amounts written off	1,783	498
Amounts owing by subsidiaries	5,971	4,576
	7,754	5,074
Amounts owing to subsidiaries	749	334
	£7,005	£4,740

A schedule of the subsidiary companies and Reuters holdings is set out on page 32.

15 Sale of equipment to leasing companies

Equipment for use in Reuters news retrieval services was sold at a profit to leasing companies who then entered into leases with Reuters subscribers.

The gross profit derived from such sales has been accounted for in the year of sale except where the equipment was previously capitalised or re-acquired in which cases the profit is taken over the period of the lease in annual instalments. At 31 December 1982 the profit deferred in this way amounted to £120,000 (1981 – £620,000) which is included in creditors.

Under the terms of its agreements with the leasing companies Reuters undertook either to re-acquire equipment or take an assignment of leases in the event of subscribers changing their equipment or terminating their contracts.

Reuters has now decided to buy the equipment relating to assigned leases. Accordingly, provisions brought forward from 1981 of £343,000 in respect of the gross profit element included in future lease payments on assigned leases have been released.

16 Future commitments

	Group 1982 £000	Group 1981 £000	Reuters 1982 £000	Reuters 1981 £000
Capital:				
Capital expenditure contracted for	3,209	3,183	3,981	4,966
Capital expenditure authorised but not contracted for	2,766	5,643	2,766	5,675
Other:				
Loan commitment to a subsidiary	–	–	–	1,571

17 Contingent liabilities

(a) The company has given a guarantee in respect of the unfunded liability of the Personnel Foundation of Reuters SA which at 31 December 1982 amounted to approximately £598,000 (1981 – £528,000).

(b) See also note 15.

18 Deferred taxation

The potential liability comprises:

	Group 1982 £000	Group 1981 £000	Reuters 1982 £000	Reuters 1981 £000
Excess of tax allowances over depreciation	28,680	17,170	28,200	17,170
Unrelieved losses carried forward	–	(4,250)	–	(4,250)
Advance corporation tax	–	(825)	–	(825)
	£28,680	£12,095	£28,200	£12,095

Had full provision been made in the accounts for the potential amount of deferred taxation at the rate of 52% an additional amount of £16,585,000 would have been charged against the profit for the year (1981 – £6,624,000).

19 Preparation of accounts

The accounts relate to a period to which the accounting provisions of the Companies Act 1981 do not relate. Consequently they have been drawn up in compliance with sections 149a and 152a of and schedule 8a to the Companies Act 1948.

Approval of accounts

At a meeting on 13 April 1983 the directors approved the publication of these accounts.

Subsidiary companies

These comprise the following:

	Country of incorporation	Proportion of equity held by Reuters	Proportion of equity held by subsidiary
Agencia Latinoamericana de Información Latin SA	Uruguay	52%	
Compagnia Reuters Srl	Italy		100%
Comtelburo Ltd	UK	100%	
IDR Inc	USA	100%	
Monitor Iberia SA*	Spain	100%	
Monitor (International) SA	France	25%	75%
Monitor Trading Ltd (formerly Rhinanthus Ltd)	UK	100%	
Reuter GmbH	Germany	100%	
Reuter Nederland BV*	Netherlands	100%	
Reuter Portuguesa Ltda	Portugal	51%	49%
Reuters Europe Western Region SA*	France	100%	
Reuters (Nigeria) Ltd	Nigeria	100%	
Reuters SA (not trading)	Switzerland	100%	
Reuters Serviços Econômicos Ltda	Brazil	99%	1%
Rhinanthus Leasing Ltd*	UK	100%	

*Incorporated during 1982.

Associated companies

The following are the associated companies in which Reuters has an interest:

	Country of incorporation	Proportion of equity held	Accounts made up to
News Communications Ltd	UK	50.0%	31 December
Société Française Pour l'Information SA	France	50.0%	31 December
Visnews Ltd	UK	33.1%	31 March

Group Financial Summary

	1982 £000	1981 £000	1980 £000	1979 £000	1978 £000
Turnover	179,913	138,804	90,095	76,309	67,712
Operating profit	36,530	16,371	4,136	3,688	3,424
Funds employed					
Share capital and reserves	59,537	31,908	19,821	16,575	13,475
Loans and deferred creditors	–	7,393	4,942	3,653	5,132
	£59,537	£39,301	£24,763	£20,228	£18,607
Represented by					
Fixed assets, investments and recoverable ACT	68,660	39,732	20,536	16,669	15,784
Net current (liabilities)/assets	(9,123)	(431)	4,227	3,559	2,823
	£59,537	£39,301	£24,763	£20,228	£18,607
Additions to fixed assets	44,631	27,629	10,871	5,989	5,958
	1982	1981	1980	1979	1978
Shareholders funds as a percentage of funds employed	100.0%	81.2%	80.0%	81.9%	72.4%
Operating profit as a percentage of turnover	20.3%	11.8%	4.6%	4.8%	5.1%
Number of employees at year end	3,205	3,023	2,894	2,640	2,537

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Report of the Auditors

to the shareholders of Reuters Limited

We have audited the accounts on pages 19 to 32 in accordance with approved Auditing Standards.

In our opinion, the accounts, which have been prepared under the historical cost basis, give a true and fair view of the state of affairs of the company and the group at 31 December 1982, and of the profit and source and use of funds of the group for the year then ended and comply with the Companies Acts 1948 to 1981.

The accounts do not contain the current cost statements required by Statement of Standard Accounting Practice number 16.

Binder Hamlyn
Chartered Accountants

8 St Bride Street
London EC4A 4DA

13 April 1983

COMPANY PROFILE

TELERATE, INC.
One World Trade Center
New York, NY 10048

Telephone: (212) 938-5200

President: Neil S. Hirsch

Status: Public, NYSE

Year Founded: 1969

Fiscal Year End: September 30

PERFORMANCE

	1979	1980	1981	1982	1983
Revenue ($ millions)	$11.8	$17.2	$27.7	$41.6	$67.1
Percent growth	62%	45%	61%	50%	61%
Net income	$ 2.1	$ 3.6	$ 6.6	$11.1	$ 20
Percent growth	114%	75%	81%	69%	80%

BUSINESS MIX

All of Telerate's revenue is derived from on-line quotation services on precious metals, money market instruments, financial futures U.S. Treasury and Federal agency securities, foreign exchange and mortgage market securities. It has recently (July 1983) added a financial news service from a joint venture called AP-Dow Jones/Telerate.

GOALS & OBJECTIVES

The goal of the company is to become the de facto standard for the above specialized financial quotation services so that actual transactions can occur over the network rather than just information exchange. As that point several options open up including Telerate becoming a depository for funds needed to satisfy purchases and/or sales of the financial commodities taxed (with a float value of tens of billions of dollars). The value of such a position is obvious.

CURRENT STRATEGY

The current strategy is to accelerate the market average of the Telerate services by piggy-backing the information on existing networks of users, both here and abroad. The biggest move in that direction came with the adoption by Quotron of the Telerate service on a shared-revenue basis. The second element to that strategy is the development by Telerate of its own private network to serve the communications needs between the regional centers, New York headquarters, and the subscribers. Telecommunications is the highest cost element in Telerate's operations at present. The third element of the strategy is to broaden the number of data bases offered, similar to the Reuters strategy.

Telerate has a tiny debt/equity ratio (less than 0.02) and is well positioned for acquisitions. However, it isn't clear (now that GTE has sold its brokerage business) what useful target Telerate could pursue.

CAPABILITIES

Telerate's standard on-line service includes the following quotation services:

- U.S. Treasury and Federal Agency securities.
- Money market instruments (bankers acceptances, COD, commercial paper, REPOS) and interest rates.
- Foreign exchange.
- Precious metals.
- Mortgage markets.
- Summary financial news.

Optional services include futures, price data for petroleum and other energy-related products, money market commentary, S & Ps Bare List bonds and Quotron's equity quotations, plus various news wire services.

Telerate is currently reviewing the options on telecommunications including satellite transponders, FM radio stations, and UHF radio. The company has begun implementing the Telerate II terminal, a micro-based terminal with local storage capability (100 pages of the most frequently used information). In addition, financial forecasting/planning software will be provided by Telerate Market Systems Inc., an 80% owned subsidiary of Telerate.

The company's image is rather narrow but excellent. The visibility of the products Telerate does have is first rate but it is a specialist market. The company is very strong financially following the public stock offering and has a large cash reserve.

MANAGEMENT

The average age of the directors is 42. Neil Hirsch (President and CFO) is 35 and John Terranova (Executive Vice President of Finance) is 37. Other major directors include:

- Robert Fraser - Executive Vice President, Administration - 43.
- John Gunn - Chairman of the Board - 41.
- Dick Cowles - Executive Vice President, TSI - 45.
- John Jessop - Senior Vice President, Marketing - 41.
- Alan Zimmerman - Controller - 32.
- Ron Heath - Treasurer - 38.

The team is aggressive, very ambitious and a contrast to Quotron.

ASSUMPTIONS OF FIRM

Telerate is growing at a rate (50% per annum) that suggests to management that they can be aggressive in their product development and market expansion. The battle is going to be for the desk space of the financial professional, in the same way that the personal computer battle was for shelf space in the retail stores. Telerate is not a force in the equity quotation market (where Quotron has a quasi-monopoly) and this is a must for the future. In the meantime there is much to do in improving the basic Telerate service (it takes 12 seconds to access a page of data currently).

GENERAL CHARACTERISTICS

There have been no major acquisitions but several are contemplated, and a few would make eminent sense (GTE Telerate, Bunker Ramo Information Systems, to name two). Telerate has agreed to let Quotron remarket its service to current Quotron subscribers, which may have been a mistake (it reinforces the Quotron-customer link and provides additional revenue to Quotron at little cost).

Telerate is a company in transition. It has based its service on Perkin Elmer mini-computers (a move similar to the RCS vendors of the 60's buying Xerox hardware) it has poor control over its telecommunications services (and costs, which could rocket in January 1984 due to the AT&T split up) and it has limited geographic coverage of its main market - the U.S. In addition, it has chosen to use Datamedia Corporation as its sole supplier of terminals. Telerate needs to standardize its hardware on IBM or DEC products.

Telerate's uniqueness is its possession of specialized commodity and financial future data. Its weakness is its lack of market penetration, but appears to be growing fast enough to rectify this situation.

COMPANY PROFILE

TYMSHARE INC.
20705 Valley Green Drive
Cupertino, CA 95014

Telephone: (408) 446-6000

Chairman and President: Thomas O'Rourke

Status: Public Company, NYSE

Year Founded: 1966

Fiscal Year End: December 31

PERFORMANCE

	1978	1979	1980	1981	1982
Revenue ($ millions)	$149.6	$193.1	$235.9	$289.7	$297.0
Percent Growth	48%	29%	22%	23%	3%
Net income ($ millions)	$ 10.6	$ 14.6	$ 18.7	$ 15.7	$ 8.8
Percent growth	26%	33%	18%	(27%)	(45%)

BUSINESS MIX

The 1982 revenue sources were as follows:

Service	Revenue ($ millions)	Percent
Processing services	$188	63%
Turnkey systems	10	3%
Professional services	8	3%
Software products	5	2%
Telecommunications services	64	22%
Hardware, maintenance and other	22	7%

GOALS & OBJECTIVES

The short term goal of Tymshare is to find an acquirer, for which Goldman Sacks and Hambrecht Quist have been hired as financial advisors following WANG's withdrawal. Tymshare is also looking to divest business areas with declining revenues while investing in the expansion of the TYMNET network (its biggest asset). Other stated goals include an ill-defined and amorphous "blend of communications and data processing" and "more custom systems," "new software tools (--) for progressive industries." Tymshare believes "we are entering a new timesharing era (--) the third major revolution (--) from raw T/S (1), to specialized value-added applications (2), to the sharing of large integrated systems and services (3)," whatever that means.

CURRENT STRATEGY

The one clear strategy that can be seen is the pursuit of the telecommunications VAN network business which is expanding at 50% per annum and is nearly one-third of the 1983 revenue base. Customized private networks, public packet-switched networks, and personal packet network nodes are some of the key products. Tymshare has the opportunity to become one of the first commercial data carriers to package satellite, microwave, and cable-based communications services that provide telex, terminal and computer interconnect. Outside of the communications area, Tymshare's strategy is confused. It has unsuccessfully dabbled in medical systems, credit card processing, fuel oil processing, and shared automatic teller machine networks. None of these businesses were pursued aggressively. Tymshare has attractions for commercial processing service vendors, specialist transaction service vendors, and communications companies, but has a confusing profile. Two suitors came and went in 1983 (Wang and McAuto). The company can now be had cheaply since there is strong dissatisfaction amongst shareholding management that they were unable to cash in on the McAuto offer.

CAPABILITIES

Tymshare's capabilities are best defined by looking at who its competitors are:

- Remote Computing: GEISCO (General Electric), Business Information Services (CDC), National CSS (Dun & Bradstreet), Automatic Data Processing, Computer Sciences Corporation, and Electronic Data Systems.
- Credit Authorization Services: Telecredit and JBS.
- Accounting/Tax Services: CCH Computax, Computer Language Research (FASTAX), Computer Seiences Corporation, and Reynolds & Reynolds.
- Data Communication Services: GTE Telenet, AT&T, and United Telecom (UNINET).

The full product line available on the processing network and batch service is given in Exhibit A.

The company's financial position continues to erode. In the nine months to September 30, 1983, revenue was $217.2 million, down from $231.7 million a year earlier and the net loss of $139,000 was achieved only after a $3.8 million tax benefit, compared to a profit in 1982 of $11.1 million.

Tymshare is not strongly managed and lacks a clean strategy. This has led to some dissillusionment in the employee ranks and the loss of good people. The head count on September 30, 1983 was approximately 3,400. Nevertheless, the company continues to increase its network, which for a long time has had to take a back seat in the distribution of investment capital, but that now believes its time has come.

MANAGEMENT

Tom O'Rourke, 65, CEO of Tymshare far 17 years (since inception), ex GE.
Alden Heintz, Vice President, International Operations Graup, 15 years with campany, ex CDC.
Ron Braniff, Vice President, Computer Services, with campany 15 years, ex IBM.
Warren Prince, Vice President, Network Systems, with campany 12 years, ex GE, ex President af Call-A-Camputer.
Laszlo Rakacz, Vice President, Camputer Technalagy, with campany 10 years, farmer faunder of Standard Computing Carparatian, ex GE and RCA.
Vince Titola, Vice President and CFO, jained Tymshare 1980, ex treasurer af Ampex, ex U.S. steel and Chase Manhattan.

Exhibit B is an organizatian chart af Tymshare's divisian management.

ASSUMPTIONS OF FIRM

The campany's management was preoccupied, until recently, with size rather than prafit. This led ta a series af acquisitians, many af which have since been discarded and athers which remain but shauld have been sald aff. This preoccupation with size at all casts has drained the campany af capital and management time and attention it cauld not affard.

Tymshare would have liked ta have been ADP, but lacks the market know-how and management strength to make it happen. Having been a pianeer in timesharing, Tymshare naw lags behind in applicatian strength, and salesfarce strength. The campany could easily become a data cammunicatians carrier far the carparate western world at a time when the need far such services is just taking aff.

GENERAL CHARACTERISTICS

Tymshare markets its services thraugh a cambination af direct sales (equipment product marketing, infarmation netwark services, prafessional services, five international sales graups), vertical market subsidiaries (Tymshare transactian services, Telecheck, Tymshare Banking systems) and joint ventures.

The latter have included exclusive marketing agreements with MATRA af France (Scanset), turnkey systems with Timberline Systems Inc. (Prafessianal Accaunting Systems), and high-speed saftware downlaading systems jaintly develaped by Tymshare and Software Inc. of San Francisco. This is Tymshare's entree inta the saftware retail market and the system is intended to feed aff of the TYMNET network, cannected to IBM PCs explaiting a data base of available saftware programs. Tymshare hopes ta bring the service ta Eurape rapidly.

Tymshare's unique capability is its network and worldwide caverage. Its remate camputing services are not unique nar especially campetitive.

ACQUISITIONS (Since January 1982)

Multi-point Communications Corporation, a provider of multipoint distribution services in the Chicago area, was acquired in early 1982. Multi-point owned and operated a microwave transmission station that distributes Reuters Financial Information and Showtime pay TV signals.

Travel Systems Inc., of Austin (TX) was acquired in March 1982. Travel Systems marketed a fully integrated, standalone accounting system for travel agencies. It was merged into Tymshare's Travel Management Services, an organization established last year after the acquisition of ITT Electronic Travel Services.

DMI Systems Inc. of Lyndhurst (NJ), a closely-held supplier of financial data processing systems. DMI had 1982 revenue of $4 million.

Acquired a majority ownership (80%) of FTC Communications, Inc., one of the five largest international record carriers, during 1983, pending FCC approval. FTC Industries will retain the remaining 20%. FTC will be combined with TYMNET, enabling Tymshare to participate in the electronic messaging marketplace providing telex, teletext, and other services.

DIVESTITURES

Tymshare's fuel oil processing business was sold in 1981 to a group of investors.

Marketing and development activities on MANUFACTS, a turnkey system for manufacturers, have been cancelled.

OPTION, an automatic teller machine pilot network program in Southern California, was terminated after two years in development.

Tymshare sold its Medical Systems Division to McDonnell Douglas Automation (MCAUTO) in April 1982 for an estimated $7 to $8 million. Annual revenue of the division was about $15 million.

In October 1982 a portion of Tymshare's Transaction Services Division, the credit card processing segment acquired in 1977, was sold to its largest competitor, First Data Resources, an American Express subsidiary. For the first nine months in 1982, credit card processing revenue was $19 million. American Express purchased the operation for an estimated $9 to $10 million.

RECENT OFFERING ANNOUNCEMENTS

October 1983 - MAGNUM , Tymshare's relational data base management system, now available as a software product for user in-house use.

- Offering 2400 bps asynchronous dial-up support for low-cost modems on TYMNET.

- The Swedish Telecammunications Administratian awarded $3 million contract to Tymshare far a major expansion of the DATAPAK packet-switched network. The cantract calls far installation af nine TYMNET Engine cammunication processors and five ISIS/MXP systems.

- Tymshare and FTC Communicatians annaunced the inaguratian af two-way messaging between Tymshare's OnTyme electranic message service and FTCC's internatianal telex gateway.

September 1983 - Tymnet supplied the Chase Manhattan Bank with the first phase af a private communicatans netwark which will intercannect bank aperations in New York with Landan, Paris, Geneva, Bahrain, Panama City, Singapare, Hang Kang, and Jakarta.

August 1983 - Annaunced an asset management system, Mechanized Inventary Tracking System (MITS), designed ta track, contral, analyze, and repart an capital assets. Available as a software product (starting at $50,000) on IBM and plug-campatible systems, ar as a pracessing service.

August 1983 - Tymshare added a 1,200 bit/sec madel ta its line af Scanset terminals, priced at $1,295.

September 1983 - Annauncing a new versian af its OnTyme electranic mail system that uses nan-technical English language instructians. OnTyme has over 10,000 warldwide users and is accessed via TYMNET.

February 1983 - Annaunced an expansian program of TYMNET to extend its public packet data cammunicatians netwark fram an additianal 150 U.S. cities. Mare than 400 cities will have lacal access ta TYMNET by mid-year (extending services to mast lacatians with populatians of 85,000 ar greater).

November 1982 - A new service aptian, TYMSLICE , was intraduced, permitting a custamer ta have sole access ta a partian af ane of Tymshare's large mainframe computers at a fixed manthly charge.

November 1982 - Tymshare annaunced its affering af micracamputer-based services, integrating micracamputer-based applicatians saftware with data base and remate camputing services access ta TYMNET.

- Using DEC Rainbaw 100 series and Prafessional 300 series micra-camputers, users initially will be provided business applications far infarmatian management, financial madeling and analysis, data entry, and word processing.

May 1983 - Announced a service, Financial Institutian Cammunications System (FICS), as an application af OnTyme electranic message network service ta carre-spandent banks.

EXHIBIT A

APPLICATIONS AVAILABLE ON TYMSHARE'S RCS
NETWORK AND BATCH SERVICE BUREAUS

APPLICATION AREA/PRODUCT NAME
• OPERATING ENVIRONMENT
– IBM 370/3033, VM/CMS
– AMDAHL V6, VM/CMS
– XEROX 940s, TYMCOM IX
– DEC SYSTEM 10, TYMCOM X
• DISTRIBUTED PROCESSING CAPABILITIES
– TYMSHARE MODEL 1100 INTELLIGENT TERMINAL
– IBIS
– TYMSHARE SYSTEM XX
• PROGRAMMING LANGUAGES SUPPORTED
– APL – COBOL
– ASSEMBLY – FORTRAN
– BASIC – PL/1
• DATA MANAGEMENT SOFTWARE
– FOCUS – RETRIEVE
– IML – SYSTEM 1022
– MAGNUM – SYSTEM 2000
• DATA BASES AVAILABLE
– TYMQUOTE SECURITIES DATA
– CITIBASE TIME SERIES DATA BANK
– SITE II DEMOGRAPHIC DATA (1980 CENSUS)
– DWIGHTLINE (PETROLEUM)
• FINANCIAL APPLICATIONS/TOOLS
– BASIC BUSINESS LANGUAGE (BBL)
– EXPRESS
– FINPACK (FINANCIAL ANALYSIS)
– TYMTAB (FINANCIAL MODELING)
– FINSYSTEM (PERSONAL FINANCIAL PLANNING)
• SCIENTIFIC AND ENGINEERING
– GPSS – STRESS
– MACE – ANVIL 4000
– MSINC – SPICE
– NATIONAL SEMICONDUCTOR LIBRARY
– TI MICROPROCESSOR SUPPORT

APPLICATION AREA/PRODUCT NAME
• MANAGEMENT SERVICES
– CASH MANAGEMENT
– BUDGET PLANNING AND ANALYSIS
– PERSONNEL (PERS)
– PROJECT MANAGEMENT (CRAM)
– EARNINGS RECORD (ERS)
– RAIL FLEET MANAGEMENT (RAILTRACK)
• ACCOUNTANTS/TAX SERVICES
– GENERAL LEDGER (FRS)
– TIME REPORTING AND BILLING (TRS)
– DYNATAX, UNITAX, DELTATAX, AUTOTAX, ESTAX
• BANKING APPLICATIONS
– INTERNATIONAL BANK INFORMATION SYSTEM (IBIS)
– CREDIT CARD PROCESSING
– MUNICIPAL BONDS (BONDBID)
– CREDIT ANALYSIS (SPREAD)
– LOAN ACTIVITY TRACKING
– FIXED ASSET ACCOUNTING
– ASSET LIABILITY PLANNING (ALPS)
– LEVERAGE LEASE ANALYSIS (LEVER)
• OTHER INDUSTRY SPECIFIC APPLICATIONS
– TELEPHONE INDUSTRY
– CABLE TV ACCOUNTING
– TRAVEL SERVICES
– UTILITY LOAD ANALYSIS SYSTEM
• OTHER KEY PRODUCTS
– STATISTICAL SAMPLING
– SURVEY
– STATPAK
– AUGMENT
– DISSPLA
– TELL-A-GRAF
– EASY PLOT
– ONTYME (ELECTRONIC MAIL)
– UMIS (MAINTENANCE SCHEDULING)

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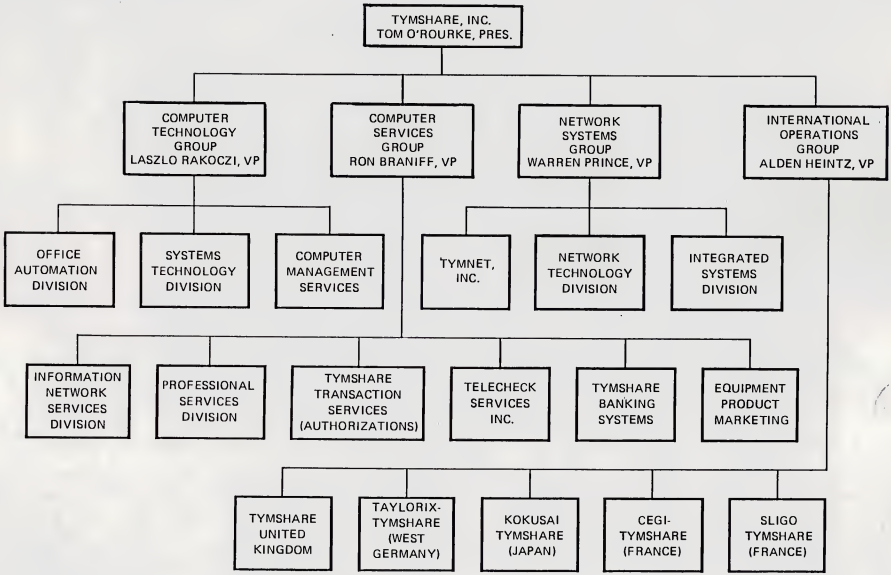
EXHIBIT B

TYMSHARE ORGANIZATION



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COMPANY PROFILE

MCDONNELL DOUGLAS AUTOMATION
P.O. Box 516
St. Louis, MO 63166

Telephone: (314) 232-0232

President: Robert A. Fischer

Status: Division of McDonnell Douglas Corporation

Year Founded: 1960

Fiscal Year End: 12/31

PERFORMANCE

	1982	1981	1980	1979	1978
Total revenue ($ millions)	$600	$483	$407	$335	$287
. Percent increase from previous year	24%	19%	21%	17%	21%
Noncaptive (commercial) revenue ($ millions)	$328	$226	$179	$151	$128
. Percent increase from previous year	45%	26%	19%	17%	15%

BUSINESS MIX

MCAUTO's 1982 noncaptive revenue was derived approximately as follows:

	Percent of Total	Revenue ($ millions)
Processing services (a)	56%	$183
Professional services	21	70
Turnkey systems	18	60
Software products	5	15
	100%	$328

(a) Includes reimbursed Health Services Division expenses.

GOALS & OBJECTIVES

MCAUTO is aiming to be a $1 billion service company by 1985, and will probably make it. The key objectives in terms of market segments are manufacturing (where MCAUTO is a leading supplier), health services, telephone companies, insurance, government, power utilities, and transportation. The company is stronger in traditional markets (e.g., manufacturing) than in the more prominent growth areas such as banking and finance. CAD/CAM is a major target market for MCAUTO for electrical utilities, engineering, and manufacturing, and the company had a 60% growth in 1983 in this area.

CURRENT STRATEGY

The current MCAUTO strategy calls for two major thrusts that aim at revitalizing the company's growth and carrying it into the 1990's:

- A major acquisition program is underway that will bring products, capabilities, and people skills in health care, networks, and software products.

- A drive to concentrate on improving the company's marketing abilities, focusing MCAUTO's strengths in systems integration and systems applications on target markets to improve productivity.

MCAUTO has the ability for (but has not yet planned a move in) the federal government and software product markets.

CAPABILITIES

MCAUTO is the second largest supplier of computer services to hospitals and these activities produced almost half of MCAUTO's revenues in 1983. Processing services produced 70% of these revenues. Turnkey systems, though small, grew at 60%. Applications include accounting, inventory control, labor management, patient billing, census, property accounting and registration control.

The industry and product management provides general business, scientific/engineering and industry specialized processing services, software products, turnkey systems and professional services. The list of applications available from MCAUTO's IBM and CYBER services is provided in Exhibit A.

The approximate industry sector breakdown of MCAUTO's revenue, which reflects their market focus, is:

	Percent of Total
Discrete manufacturing	15%
Process manufacturing	4
Utilities	9
Medical/hospital	49
Wholesale/retail	2
Government	3
Banking and finance	1
Insurance	3
Construction	3
Architects and engineers	5
Other	6%
	100%

MANAGEMENT

The management team at McDonnell Douglas is strong; the managers come from varying backgrounds and are tightly managed by a strong chief executive. The President (Fischer) is an ex-IBM executive, the Marketing VP (Donovan) is from Xerox, the Industry and Product Management VP (Clancy) is from McDonnell Douglas's own ranks, and the Health Services VP (Barlow) transferred with the group when it was acquired by MCAUTO. As the organizational chart shows (Exhibit B), managerial responsibilities are uneven. A thrust into federal government services would also seem logical.

ASSUMPTIONS OF FIRM

MCAUTO sees itself gradually assuming leadership in health care services. It also see the need to enter the telecommunications services market in order to exploit the coming boom in private corporate networks, the business opportunities that telecommunications companies will present, and the continued need for DDP systems. MCAUTO has purchased and installed over 100 IBM 4300 series systems for DDP clients.

INPUT believes that MCAUTO has many opportunities ahead of it, but needs to strengthen its network capabilities and services (which the aborted TYMSHARE acquisition would have done).

GENERAL CHARACTERISTICS

Look for MCAUTO to bid for any major service acquisition that comes on the market and to continue to acquire either the marketing rights or the assets of health care service companies, CAD/CAM service companies, and telecommunications-related companies. MCAUTO is still in a transition phase, searching for a corporate image and strategy that will cover its many and diverse capabilities.

MCAUTO is family unique in its service coverage of the manufacturing sector (which is an area that has not been adequately targeted by many service organizations). It is similar to GEISCO and UCC in this respect but lacks the remote computing strength of GEISCO and the software product strength of UCC.

EXHIBIT A

KEY APPLICATIONS AVAILABLE ON MCAUTO'S IBM AND CYBER SERVICE

APPLICATION AREA/PRODUCT NAME

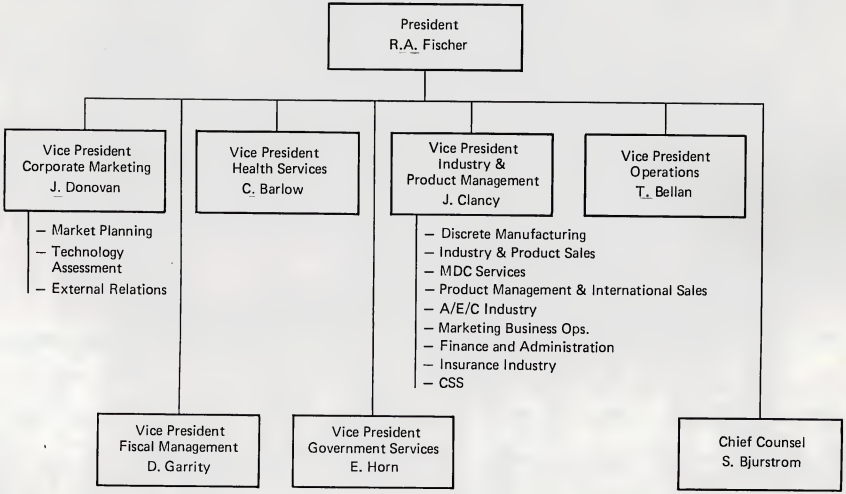
- OPERATING ENVIRONMENT
  - CDC CYBER 175, 170s-730, 750, 760, 835, NOS 1.4
  - IBM 3081, 3033, 3032, OS/MVS
- DISTRIBUTED PROCESSING SYSTEMS
  - GROUP CLAIMS REPORTING SYSTEM
  - WORKERS COMPENSATION
  - AUTOCOUNTANT
  - PATIENT CARE SYSTEM (PCS)
- PROGRAMMING LANGUAGES SUPPORTED
  - APL
  - ASSEMBLY
  - BASIC
  - COBOL
  - FORTRAN
  - PL/1
  - SIMSCRIPT
  - PASCAL
- DATA MANAGEMENT SOFTWARE
  - IMS
  - SYSTEM 2000
  - CICS
  - CONFIRM
- BUSINESS AND FINANCE
  - AUTOCOUNTANT
  - FINANCIAL PLANNING (AUTOPLAN)
  - SHAREHOLDER RECORDS
  - STOCK TRANSFER (ASTS)
  - DIVIDEND REINVESTMENT (DRS)
  - CHECK RECONCILIATION
  - FINANCIAL CONSOLIDATION SYSTEM (FCS)
  - ANNUIT
- HOSPITAL AND HEALTH CARE
  - PATIENT CARE (PCS)
  - DATA COLLECTION (HDC)
  - FINANCIAL CONTROL (HFC)
  - PHYSICIAN DATA SERVICES
  - MEDICAL RECORDS
- MANUFACTURING/DISTRIBUTION
  - PROCESS PLANNING (CAPP)
  - CAPACITY PLANNING (CAPOSS)
  - ON-LINE ORDER PROCESSING (CO-OP)
  - FREIGHT RATING AND ROUTING
  - VEHICLE SCHEDULING (IVESS)
  - MATERIAL REQUIREMENTS PLANNING
  - ENGINEERING ACCOUNTING
  - ORDER TRACKING

APPLICATION AREA/PRODUCT NAME

- OPERATIONS RESEARCH/STATISTICAL
  - BOX-JENKINS PROGRAMS
  - CONTINUOUS SYSTEMS MODELING
  - SIMULATION (GASP IV, GPSS V)
  - NETWORK OPTIMIZATION (GNET)
  - STATISTICAL (SAS, STATPAK/TSO, UCLA BMD, COSAN, IBM SCIENTIFIC SUBROUTINES, IMSL LIBRARIES)
- INSURANCE
  - EMPLOYEE BENEFIT (EBS)
  - GROUP CLAIMS (GCPS)
  - MEDICARE B CLAIMS
  - PATIENT SERVICE RECORDS (PSRS)
  - WORKERS COMPENSATION (WCPS)
- MANAGEMENT CONTROL
  - MANAGEMENT SCHEDULING AND CONTROL SYSTEM (MSCS)
  - COST PLANNING AND EVALUATION SYSTEM (COPES)
  - MAPS/TMAPS
- SCIENCE AND ENGINEERING
  - CHEMICAL PROCESS ENGINEERING
  - CIVIL ENGINEERING
  - ELECTRIC POWER ENGINEERING
  - MATHEMATICS
  - ELECTRONICS ENGINEERING
  - NUCLEAR ENGINEERING
  - STRUCTURAL ENGINEERING
  - MCAUTO OFFSHORE PROGRAMS
  - NISEE EARTHQUAKE PROGRAMS
  - MECHANICAL ENGINEERING (BUILDING, DUCT DESIGN, HEAT TRANSFER, PIPING AND VESSELS)
- OTHER
  - TELEPHONE INDUSTRY APPLICATIONS
  - GRAPHICS (VIVIDATA)
  - TEXT EDITING (DATA DIALOG)
  - PROJECT MANAGEMENT
  - PROGRAM AIDS
  - COMPUTER OUTPUT MICROFILM
  - FASTDRAW (MODELING/GRAPHICS)
  - COMPUTER PERFORMANCE AND CAPACITY MANAGEMENT

EXHIBIT B

MCAUTO ORGANIZATION CHART



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COMPANY PROFILE

ELECTRONIC DATA SYSTEMS CORPORATION
7171 Forest Lane
Dallas, TX 75230

Telephone: (214) 661-6000

President: Morton Meyerson

Status: Public, NYSE

Year Founded: 1962

Fiscal Year End: 6/30

PERFORMANCE

	1983	1982	1981	1980	1979
Revenue ($ millions)	$ 652	$ 510	$ 455	$ 375	$ 274
Percent growth	28%	12%	21%	37%	26%
Net income ($ millions)	$58.7	$47.0	$37.8	$28.9	$23.7
Percent growth	25%	24%	31%	22%	21%

BUSINESS MIX

The approximate revenue sources of 1983 were:

Insurance/medical	39%
Banking and finance	24%
Manufacturing/distribution/ transportation	6%
State and local government	3%
Federal government	25%
Other	3%

GOALS & OBJECTIVES

EDS is out to achieve what PRC and CSC have tried and failed to do: become the leading professional services company in both federal and commercial markets. The company has aimed at the sectors with money - federal government, banking and finance, insurance/medical - and has substantially penetrated all three. EDS is already the leading supplier of FM processing services and is one of the top three suppliers of credit union processing services. Fourteen acquisitions since March 1982 (five of which were credit union service based) have provided substantial revenue and net income growth. EDS rivals ADP in growth and revenue volume but competes mainly in banking and finance processing services (not the main thrust of ADP's business).

CURRENT STRATEGY

The company's current strategy involves a combination of exploration and expansion of its established markets (insurance, government, credit union, health) while being opportunistic in new markets (predominantly commercial and also international). EDS feels it is "on a roll" with major contracts, is beating CSC and PRC to the punch in many government contracts, and is far healthier financially than both of these competitors. This accounts for EDS's aggressiveness in acquisitions and in the marketplace in general. Using divestitures and dispositions, EDS also prunes activities that either do not grow or are part of other acquisitions (i.e., the undesirable part). EDS intends to standardize its processing and professional service activities around IBM, which forms all of the data center capabilities along with Amdahl and NAS compatibles.

CAPABILITIES

EDS is structured into four major groups and two subsidiaries:

Insurance Group:	Automated Services (data processing and administrative services to health care, education and government agencies). Blue Division (Blue Cross, Blue Shield insurance FM). Commercial Insurance FM, turnkey and professional services. Health Services FM to hospitals and nursing homes.
Commercial Systems Group:	Variety of processing services to airlines, travel agents, credit card companies, financial institutions, commercial banks, and savings and loans.
Information Technology Group:	Social Security Administration (EDS FM and professional services contracts for the Administration). Optimum Systems (federal government and commercial processing). EDS Federal Corporation (professional services to civilian agencies). International (processing and professional services).
Technical Services Group:	Data center management and operation.
Centurion Computer Corporation:	Manufacturer of minicomputers for EDS Credit Union division and 50 franchised dealers.
National Heritage Company:	Underwrites claims for the Texas Medicaid contract.

The list of network-based services offered by the OPTIMUM Systems division is shown in Exhibit A.

MANAGEMENT

The average age of the 19 executive officers listed in Exhibit B is 44 years.

The organizational chart describing the main groups, subsidiaries, and divisions is shown in Exhibit C. In contrast to it competitors, EDS has had fewer personnel problems with turnover among its 13,000 (approximately) employees and its top level of management. A certain amount of fluctuation is to be expected in the professional services market, but EDS has circumvented most of it by using facilities management contracts of five or more years duration to stabilize manpower demand and functional requirements. The ten-year VIABLE contract, worth $656 million, is typical, where EDS will manage half of the Army's 47 DP installations.

ASSUMPTIONS OF FIRM

EDS believes it can become the number one computer services vendor in the world by 1986, overtaking ADP and easily outdistancing CDC, CSC, and PRC. INPUT thinks this is not only possible but probable. EDS's decreasing reliance on the Insurance Group's revenue (which contributed 40% of 1983 total revenues, down from 50% in 1981) and increasing commercial business (33% of 1983 revenues) points to a company achieving something that no other vendor has been able to do: balance its strengths in government services with commercial business. The company has many avenues open to it for expansion, not least of which is EDS-NET a relatively small, proprietary network that links 20,000 customer terminals with five EDS processing centers. Begun in mid-1982, EDS-NET will become a valuable contributor in 1985.

GENERAL CHARACTERISTICS

It is characteristic of EDS that in 1983 most of the $142 million revenue growth came from new contracts, extensions, and renewals of existing contracts. The 14 acquisitions contributed relatively little, as did the $16.5 million settlement by IRAN of its default on its Social Security contract with EDS. The company is a hardworking, tough competitor that frequently reports to the law courts to resolve contractual differences with its clients.

The key to EDS's success has been people management, contract negotiation skills, and hard work. Acquisitions have provided entries to new markets (not always successful), but organic growth has been the principal business driver. As Ross Perot, the company chairman puts it, "We cannot allow our success to limit our goals for the future or be lulled into focusing on what we know and what is comfortable."

EXHIBIT A

OPTIMUM SYSTEMS DIVISION
NETWORK PROFILE

APPLICATION AREA/PRODUCT NAME

Operating Environment
- 2 IBM 3033s, MVS
- 1 IBM 3081, MVS
- 1 Amdahl 470-V6
- 1 NAS 7031

Time-sharing/Telecommunications Monitors
- ROSCOE
- SUPERWYLBUR
- TSO
- CICS
- ADR/DATACOM/DC

Programming Languages
- APL
- ASSEMBLER
- BASIC (VS)
- COBOL (OS/VS)
- FORTRAN (G1, H-extended, VS)
- PL/1
- PASCAL
- ADR/METACOBOL
- ADR/DATACOM/DL

Utility Programs
- IAM
- LIBRARIAN/VS
- OPTIMIZER III
- SYNCSORT

Command Languages
- JCL
- JES2

File/Data Management Systems
- ADR/DATACOM/DB
- ADR/DATACOM/DATAREPORTER
- ADR/DATADICTIONARY
- ADR/DATAQUERY
- EASYTRIEVE
- GIS/VS
- MARK IV
- SYSTEM 2000

APPLICATION AREA/PRODUCT NAME

Data Bases
- DUALabs 1980 Census

Financial Tools
- ADR/EMPIRE

Project Management
- PMS IV
- PROJECT/2 MOD2

Statistical/Modeling/Simulation
- ADR/EMPIRE
- BMD/BMPD
- CSMP III
- GPSS V
- SAS
- SPSS
- SSP

Graphics
- Calcomp Graphics
- DISSPLA

Documentation Tools
- ADR/ASC
- ADR/AUTOFLOW II

Other
- ADR/EMAIL (Electronic Mail)
- ADR/On-line ETC (Text Composition)
- QUIC (Keyword-in-Context)

EXHIBIT B

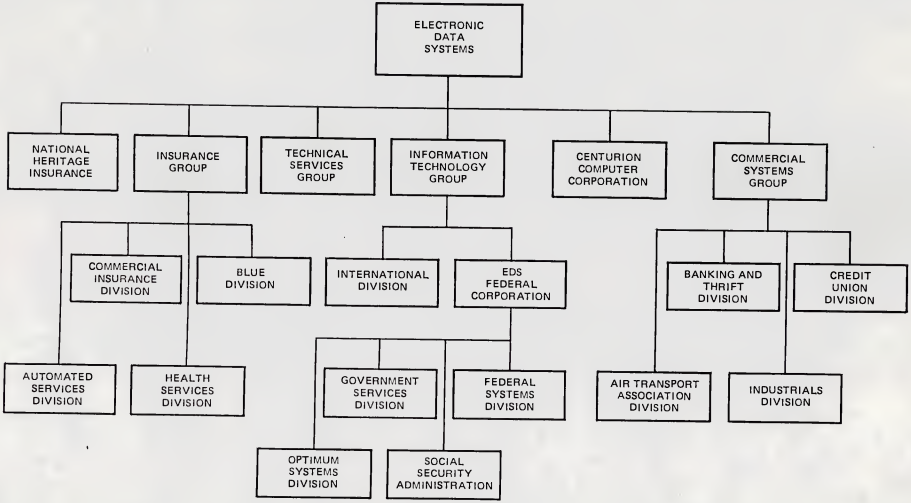
EXECUTIVE OFFICERS

The following is a listing of executive officers as of June 30, 1983:

NAME	OFFICE OR POSITION	SERVED IN POSITION SINCE	AGE
H. Ross Perot	Chairman of the Board	1962	53
Morton H. Meyerson	President	1979	45
Lester M. Alberthal, Jr.	Vice President, Insurance Group	1974	39
Thomas D. Behne	Vice President	1971	52
Claude K. Chappelear	Vice President, General Counsel, Secretary	1978	46
Paul J. Chiapparone	Vice President	1982	44
R. Michael Farmer	Treasurer	1979	40
Gary J. Fernandes	Vice President, Information Technology Group	1979	40
William K. Gayden	Vice President, Administration and Finance	1970	42
J. Davis Hamlin	Vice President	1969	51
Jeffrey M. Heller	Vice President, Technical Services Group	1974	43
Kennard F. Hill	Vice President	1982	43
Gilbert E. Hurley	Vice President, Comptroller	1971 1982	46
G. Stuart Reeves	Vice President	1982	43
Ross N. Reeves, III	Vice President	1982	39
Kenneth G. Riedlinger	Vice President, Commercial Systems Group	1979	43
Glen D. Self	Vice President	1971	45
Robert N. Sharpe	Vice President	1982	39
J. Thomas Walter, Jr.	Vice President, Chief Financial Officer	1966 1979	49

EXHIBIT C

ORGANIZATION CHART



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COMPANY PROFILE

McGRAW-HILL, INC.
1221 Avenue of the Americas
New York, NY 10020

Telephone: (212) 512-2000

President: Joseph L. Dionne

Status: Public, NYSE

Year Founded: 1909

Fiscal Year End: December 31

PERFORMANCE

	1983	1982	1981	1980	1979
Revenues ($ millions)	$1,295	$1,194	$1,110	$1,000	$ 880
Percent growth	8.5%	7.6%	11.0%	13.6%	15.6%
Net income ($ millions)	$126.5	$110.0	$ 98.1	$ 86.4	$ 76.9
Percent growth	15.0%	12.1%	13.5%	12.4%	20.7%

BUSINESS MIX

Based on finalized 1983 revenues, the business mix was:

	Percent of Total
- McGraw-Hill Book Company	31.4%
- McGraw-Hill Publications	29.4
- McGraw-Hill Information Systems	17.1
- S&P	10.4
- Data Resources	6.2
- McGraw Hill Broadcasting	5.5

GOALS & OBJECTIVES

In a 1983 business analysts meeting, prior to stepping down as CEO, Harold McGraw Jr., Chairman said that the company expects to maintain a 14-16% per annum growth over the next five years driven by the creation of new products from the information systems companies. The idea is to have access to as many "information gateways" as possible so that no matter what equipment the user has, McGraw-Hill will provide the information that is pertinent to the users business. This concept is being applied to DRI (VisiLink), and S&P (Marketscope). Joint ventures with GTE (Marketscope), Telerate (S&P Blue List) and I.P. Sharpe (Electronic Marketing) are other examples of M-H's efforts in this area.

CURRENT STRATEGY

Over the last three years McGraw-Hill has broadly adopted computer technology and created its own distribution network. The strategy is to focus multimedia information products and services for vertical markets, which means multiplying the information gateways and distribution channels. This will bring revenue growth; automation (such as electronic editing) and the changing business mix (from print to electronic delivery) are counted on to provide margin growth. McGraw-Hill expects to generate $40-50 million cash each year from current businesses. The search is on for new information companies (i.e., that own information, not necessarily distribution networks or technology). Also, McGraw-Hill intends to broaden its targets, beyond serving the business and professional, to the "skilled consumer" market, in the belief that most of the products and services needed by this new market will be business-oriented.

CAPABILITIES

Data Resources Inc.

Provides on-line econometric data and forecasting capabilities aimed at business economists, legal professionals (Infolaw), DOD (Budgetrack, Defense Economics Research), DRILINK (which allows clients to transfer DRI data and forecasts to their PCs and manipulate them with VISICALC) and EPS II, a mainframe-to-DRI mainframe interaction package. See Exhibit A for product list.

Standard & Poor's

Vast data bases of financial and corporate business data on NYSE, AMEX, OTC quoted companies, debt ratings, bonds, stocks and news. Distribution is through CompuServe, Lockheed, and Citibank.

F.W. Dodge

A construction analysis system providing the construction industry with estimates, building material costs and contracts open for bidding.

Datapro Research

A directory and seminar supplier to the computer industry on computer products offered in the U.S. and Japan.

Product Information Network

City, county, state government and public utility product data base.

Cost Information Systems

On-line insurance valuations.

MANAGEMENT

McGraw-Hill's over 5,000 managers are predominantly editors and publications product managers familiar with deadline handling, information management and information formatting. The average quality of the individual manager is (i) not high (ii) narrowly focussed on a McGraw-Hill product/publication or service. Top management is cautious, in the 45-68 year range, slow moving and is generally focussed on a single aspect of the business. McGraw-Hill has moved its managers around in recent years to try and give them a better perspective and understanding of the different aspects of the business. An organization chart is provided in Exhibit B. Managements motto is "let's not rush to the poorhouse."

ASSUMPTIONS OF FIRM

McGraw-Hill sees itself as the number one supplier of multimedia information products to corporate America. The key is to own the data, not the distribution channel (which McGraw-Hill sees as an area for joint ventures) nor the client base (which may belong to a variety of distributors, each of which is viewed as a gateway). The electronic databank is viewed as the tool for formatting, cross tab and production of information based services; DRI is the driver and has recently doubled its computer processing power (currently an acre of computers in Lexington (MA) predominantly IBM 3080 series). Technology is being implemented in all areas as a means for productivity gains, e.g., IBX voice/data networks, and electronic still storage systems.

GENERAL CHARACTERISTICS

Despite the vast use of raw materials flowing through McGraw-Hill, the company doesn't own any printing houses, typesetters, paper mills or wholesalers and, of course, no equipment manufacturers. MGH concentrates on owning, gathering and distributing information, a position that will bring the company into conflict with many dynamic, aggressive businesses in the future.

Acquisitions are primarily for data acquisition and client base acquisition, not for market share (MGH believes it can develop its own market share if the data quality is good enough).

The company seems to lack technical competence in many of its data markets: this means that while MGH is good at assembling, formatting and distributing data, they don't always seem to be able to understand the significance of the data they are handling.

EXHIBIT A

DATA RESOURCES AND DATA BANKS

DATA BANKS

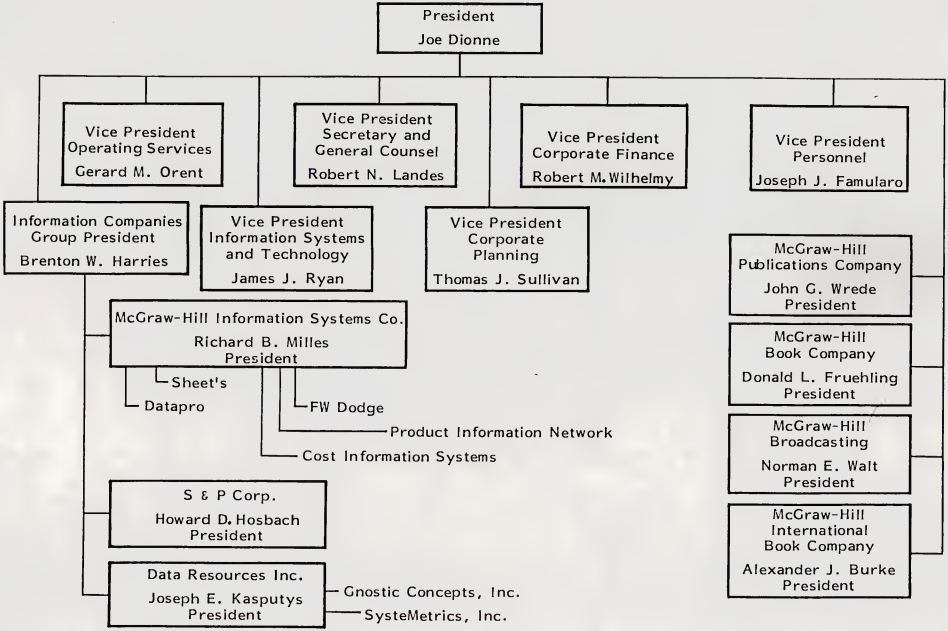
- National
  - U.S. Central
  - U.S. County
  - U.S. Prices
  - U.S. Regional
  - U.S. Weekly Banking
  - Canada
  - Europe
  - Europe Satellites
  - IBRD World Debt Tables
  - IMF Balance of Payments
  - IMF Direction of Trade
  - IMF International Financial Statistics
  - OECD Main Economic Indicators
  - OECD National Income Accounts
  - OECD International Trade
  - Japan
  - East Asia
  - Latin America
  - Developing Countries
  - California
  - New York City
- Specialized Industry
  - Agriculture
  - Farm Industrial Equipment Institute
  - Automotive
  - Best Executive
  - Transportation
  - Census of Transportation
  - Chemical
  - Coal
  - Commodities
  - Consumer
  - U.S. Energy
  - Canadian Energy
  - Japanese Energy
  - Drilling
  - Platt's
  - Forestry
  - Paper and Pulp
  - Wood
  - Steel
- Financial
  - DRI Financial and Credit Statistics
  - FDIC
  - Flow of Funds
  - Stock Prices
  - Standard & Poor's
  - Value Line
- Cross Industrial
  - Compustat
  - Conference Board
  - Cost Forecasting
  - Site II
  - State and Area Forecasting
  - Input/Output Tables

MODELS

- National Economic
  - United States
  - Canada
  - Japan
  - Germany
  - France
  - United Kingdom
  - Italy
  - Netherlands
  - Belgium
  - Far East
  - Latin America
- Specialized Industry
  - Agriculture
  - Chemical
  - Coal
  - Consumer
  - Drilling
  - Energy
  - Forestry and Wood Products
  - Pulp and Paper
  - Steel
  - Transportation
- Financial
  - Agency Yield
  - Asset Management
  - Bank Planning
  - Loan Growth/Credit Risk
  - Insurance
  - Industry Financial
- Cross Industrial
  - Cost Forecasting
  - Country Monitoring
  - Input/Output
  - State and Area Forecasting
  - State Governments
  - Utilities
  - Resource Allocation Strategist

EXHIBIT B

MCGRAW-HILL ORGANIZATION CHART



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McGraw-Hill fourth quarter financial summary

(000 omitted, except earnings per share)

Consolidated Statement of Income for the periods ended December 31

	Three Months ended December 31		Year ended December 31	
	1983	1982	1983	1982
Pro Forma Amounts Reflecting Change for Book Depository Sales (Note 1)				
Operating revenue	$365,483	$329,821	$1,295,175	$1,193,587
Expenses—net	294,055	269,509	1,048,148	978,709
Income before taxes on income	71,428	60,312	247,027	214,878
Provision for taxes on income	34,857	29,432	120,549	104,860
Net income	36,571	30,880	126,478	110,018
Earnings per share (Note 2)	$ .73	$ .62	$ 2.52	$ 2.20
Average shares outstanding (Note 2)	50,379	50,102	50,284	50,002
Originally Reported Amounts				
Operating revenue	$365,483	$335,443	$1,295,175	$1,193,587
Expenses—net	294,055	271,667	1,048,148	978,709
Income before taxes on income	71,428	63,776	247,027	214,878
Provision for taxes on income	34,857	31,122	120,549	104,860
Net income	36,571	32,654	126,478	110,018
Earnings per share (Note 2)	$ .73	$ .65	$ 2.52	$ 2.20

Operating Results by Segment for the years ended December 31

	1983		1982	
	Revenue	Operating Profit	Revenue	Operating Profit
McGraw-Hill Book Company	$ 406,492	$ 65,815	$ 389,301	$ 59,761
McGraw-Hill Publications Company	381,216	65,236	344,593	54,700
McGraw-Hill Information Systems Company	221,193	59,426	215,724	51,788
Standard & Poor's Corporation	134,787	37,543	105,935	25,391
Data Resources, Inc.	79,924	8,546	71,301	10,922
McGraw-Hill Broadcasting Company	71,563	25,657	66,733	25,295
Total operating segments	1,295,175	262,223	1,193,587	227,857
General corporate expense	—	(22,178)	—	(16,720)
Interest income	—	8,984	—	5,609
Interest expense	—	(2,002)	—	(1,868)
Total company	$1,295,175	$247,027*	$1,193,587	$214,878*

*Income before taxes on income.

Notes: 1. The 1983 results reflect a change in the timing of recording book depository sales to more accurately reflect, principally in the third and fourth quarters, revenue and net income from such sales. The pro forma amounts reflect the effect of the change on 1982 results. The effect of the change for the three months ended December 31, 1983 was to decrease net income by $1,540,000. The change does not affect the full year.

2. Earnings per share and number of shares for prior periods have been adjusted to reflect the two-for-one stock split in June, 1983.

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